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SIMPLOT PLANT AREA
EASTERN MICHAUD FLATS SUPERFUND SITE
POCATELLO, IDAHO
HEALTH AND SAFETY PLAN
FOR
FIELD WORK IN SUPPORT OF REMEDIAL DESIGN

August 2002

MFG, Inc.
consulting scientists and engineers

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August 2002

Prepared for:

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SIMPLOT PLANT AREA
EASTERN MICHAUD FLATS

HEALTH AND SAFETY PLAN
FOR FIELD WORK IN SUPPORT OF REMEDIAL DESIGN

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LIST OF ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
CFR	Code of Federal Regulations
HASP	Health and Safety Plan
HEPA	High Efficiency Particulate Air
HSO	Health and Safety Officer
IDLH	Immediately Dangerous to Life and Health
MSDS	Material Safety Data Sheet
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PID	Photo Ionization Detector
PM	Project Manager
PPE	Personal Protective Equipment
RPP	Respiratory Protection Program
SS	Site Supervisor
TLV-STEL	Threshold Limit Value - Short Term Exposure Limit
TLV - TWA	Threshold Limit Value - Time Weighted Average

1.0 INTRODUCTION

1.1 Purpose of HASP

This Health and Safety Plan (HASP) establishes policies and procedures to protect field personnel from the potential hazards posed by field sampling activities in support of remedial design at the Simplot Plant Area of Eastern Michaud Flats (EMF) Superfund Site (Figure 1). This HASP assigns personnel responsibilities; prescribes mandatory operating procedures; establishes personal protective equipment requirements; and describes actions to be taken during a Site emergency. This HASP has been prepared to comply with the requirements of 29 CFR 1910.120 (b)(4).

1.2 Site Location and Background

The EMF Site is located near the City of Pocatello, Idaho and includes two industrial facilities (Figure 1): the FMC Elemental Phosphorus Facility (ceased operations in December 2001) and the J.R. Simplot Don Plant. FMC produced elemental phosphorus. The Don Plant produces phosphoric acid and a variety of liquid and solid fertilizers. The EPA has divided the Site into three areas: The FMC Plant Area includes the FMC facility and adjacent land owned by FMC; The Simplot Plant Area includes the Don Plant and adjacent land owned by Simplot; and The Off-Plant Area which surrounds the FMC- and Simplot-Plant Areas.

The Simplot Don Plant covers approximately 745 acres and adjoins the eastern property boundary of the FMC facility. The main portion of the plant lies approximately 500 feet southwest of the Portneuf River. Of the 745 acres, approximately 400 acres are committed to the gypsum stack. Another 185 acres are occupied by the plant and its infrastructure. A significant portion of the remaining acreage to the south and southeast of the plant consists of cliffs and rugged steep terrain. A Union Pacific Railroad right-of-way is adjacent to the northern fence line of the Don Plant and passes through the northern portion of the Simplot Plant Area, paralleling U.S. Highway 30. Access to the Don Plant is provided by I-86 and U.S. Highway 30.

The Don Plant began production of a single superphosphate fertilizer in 1944. Phosphoric acid production began in 1954. Currently, the plant produces 12 principal products, including five grades of

solid fertilizers and four grades of liquid fertilizers. The principal raw materials for the process are phosphate ore, which is transported to the facility via a slurry pipeline from the Smoky Canyon mine, sulfur, and ammonia. The primary byproduct from the Don Plant process is gypsum (calcium sulfate) which is stacked on site.

An Administrative Order on Consent (AOC) was issued by the U.S. Environmental Protection Agency (EPA) on May 30, 1991 and entered into voluntarily by FMC and Simplot. The AOC specified requirements for implementation of a Remedial Investigation (RI) and Feasibility Study (FS) to evaluate site conditions and remedial alternatives to address any potential threats to human health and the environment. Based on the findings of these studies, EPA issued a Record of Decision (ROD; USEPA, 1998), specifying the selected remedial actions for the Site on June 8, 1998. A Consent Decree (USEPA, 2002) between EPA and Simplot, which specified the conditions for implementing the selected remedial actions in the Simplot Plant Area was entered on May 9, 2002. Initial design reports for the Simplot Plant Area remedy were submitted to EPA in early August 2002.

1.3 Scope of Work

Principal field work to support remedial design includes two separate activities. The first activity relates to the design of the groundwater extraction system and includes inspection of existing test extraction wells, installation of a new test well, and pilot borings in areas targeted for the final extraction wells (Simplot 2002a). The second activity entails sampling of the residual solids in the Dewatering Pit to evaluate if EPA's selected remedy of disposing the solids on the gypsum stack. In particular samples will be analyzed by the Toxicity Characteristic Leaching Procedure (Simplot 2002b).

1.4 Project Personnel

The provisions of this HASP are mandatory for all MFG personnel assigned to the project. A copy of this HASP will be made available to all MFG personnel, contractors, subcontractors and authorized visitors that may enter the site; to perform work associated with the project said personnel will complete the Safety Compliance Agreement Form found in Appendix A. For the purposes of this plan the term "site" is used for the field work area, not the larger Don Plant area.

The Simplot Don Plant is an operating industrial facility, which has health and safety requirements in addition to the Superfund requirements detailed in this document (see Appendix C for a summary). Don Plant health and safety requirements must be followed at all times when working in the Simplot Plant Area. In addition, some of field activities may be performed by Simplot personnel. In that event this document will serve as guidance for Superfund health and safety procedures.

MFG has developed a Corporate Health and Safety Program, to comply with the requirements of 29 CFR 1910.120 (MFG, 2002). The written MFG Corporate Health and Safety Program is available upon request to all MFG employees, clients, contractors and subcontractors. Relevant sections of the Corporate Health and Safety Program have been incorporated into this HASP.

1.5 HASP Revisions

The procedures presented herein are intended to serve as guidelines. They are not a substitute for the sound judgment of on-site personnel. Work conditions may change as the project progresses. As appropriate, addenda to the HASP will be provided by the Project Manager. Prompt notification of changing work conditions requiring possible modification of this HASP is the responsibility of the Site Supervisor. Additional field tasks with unique hazards or risks may also require addenda to this HASP. In any event, no changes to this HASP will be implemented without prior approval of the Site Supervisor or the Project Manager.

Appendix B of this HASP will be reserved for HASP addenda. Addenda to the HASP will be added to Appendix B as needed during the course of the project. Each person with a copy of this HASP will be provided with any addendums. A list of those persons who have a copy of this HASP will be kept by the Project Manager in the project files. Additionally, Appendix C contains the safety procedures and regulations pertinent to the Don Plant.

2.0 KEY PERSONNEL

This section describes the roles and responsibilities of key personnel relative to Health and Safety.

2.1 Key Organization Information

Administrative information concerning this HASP and key personnel are listed below.

Date Prepared:	August 21, 2002	
Project Title:	Field Work to Support Remedial Design	
MFG Project Number:	010121	
Site Address:	1130 West Highway 30 Pocatello, Idaho 83204	
Simplot On-Site Project Manager:	Dale Reavis	
Site Phone Number: Cell Phone:	(208) 234-5476 (208) 241-7600	
MFG Project Manager:	Andrew Koulermos (overall) Doug Frick (groundwater activities)	(303) 447-1823 (425) 921-4000
MFG Corporate Health and Safety Director:	Patricia Wickham	(303) 447-1823
Nearest Hospital or Medical Facility:	Bannock Regional Medical Center 651 Memorial Drive Pocatello, Idaho Pocatello Regional Medical Center 777 Hospital Way Pocatello, Idaho	(208) 239-1000
Plant City Police:	911	
Plant City Fire Department:	911	
Emergency Medical Service (ambulance):	911	
National Poison Control:		(800) 222-1222

National Response Center (24 Hours):		(800) 424-8802
Centers for Disease Control:	Day Night	(404) 329-3311 (404) 329-2888
U.S. EPA Hotline (24 Hours):		(800) 621-3191

2.2 Organizational Responsibilities

2.2.1 Project Manager

The Project Manager (PM) will coordinate all MFG site activities for the project. The PM will have the responsibility to interface with field personnel, Simplot personnel, and any contractors and subcontractors on any health and safety issues, as appropriate. As described in the following sections health and safety issues will be handled by onsite personnel.

The PM's responsibilities include the following:

- Coordinating with the Simplot On-Site Project Manager on all aspects of the sampling and on Don Plant health and safety requirements.
- Providing technical input for the pre-entry briefing and tailgate safety meetings with field personnel;
- Interfacing between Simplot personnel, subcontractors and MFG regarding health and safety issues which might arise;
- Initiating occasional site audit(s), as appropriate, to verify adherence to the site safety requirements; and
- Verifying that all MFG employees under his leadership work in a safe manner according to MFG policies and this HASP.

2.2.2 Field Supervisor/Health and Safety Officer

The Field Supervisor/Health and Safety Officer (FS/HSO) will be designated as the onsite MFG personnel responsible for all health and safety activities. The FS/HSO will have the responsibility for

implementation of the HASP during actual field operations performed under MFG supervision. His/her responsibilities include the following:

- Conducting the pre-entry briefing with field personnel;
- Informing personnel involved in the field operations of the proper procedures during emergencies;
- Immediately reporting any unusual or unsafe conditions;
- Verifying that all MFG employees under his leadership work in a safe manner according to MFG policies and this HASP;
- Providing a copy of the HASP to all subcontractors and third party contracts, and informing them or their representatives of any potential safety hazards that exist onsite or that may be identified during normal operations;
- Observing work party members for symptoms of overexposure or stress;
- Conducting daily tailgate safety meetings;
- Providing first aid onsite, if necessary;
- Performing site audits to verify adherence to the requirements of the HASP; and
- Modifying health and safety equipment or procedures based on data gathered at the worksite.

2.2.3 MFG Corporate Health and Safety Director

The MFG Corporate Health and Safety Director will provide the following functions in support of field activities:

- Review this HASP and all addenda thereto;
- Be available for consultation with the FS/HSO;
- Modify health and safety equipment or procedures based on data gathered at the site;
- Provide review and critique of emergency response actions required during performance of field activities, if any;
- Assist the Site Supervisor in ensuring that proper health and safety equipment is available for the project; and
- Approve MFG personnel to work on the site with regard to medical examinations and health and safety training.

2.2.4 Contractors

MFG subcontractors and third party contractors shall bear the ultimate responsibility for all matters dealing with safety in the performance of their work. This responsibility includes the safety of all persons and property and any and all employees of subcontractors that may perform work on their behalf. This requirement will apply continuously regardless of time or place, and will in no way be altered because MFG personnel provide general directions as to the location where work should be performed and/or samples taken. The contractor, their employees and any and all employees of subcontractors that may perform work on their behalf may be required to work with potentially hazardous substances. The Project Manager will, to the best of his ability, inform subcontractors or their representatives of any potential electrical, fire, explosion, health, or other safety hazards that have been identified during operations. A copy of this HASP shall be made available to all contractors working at the site.

3.0 TASK SAFETY AND HEALTH RISK ANALYSIS

The anticipated site activities potentially include both physical and chemical hazards. The sections below discuss the hazards that could potentially be encountered during the course of the project.

3.1 Drilling

All the safety provisions of normal site operations should be followed.

- Use all of the following means to locate underground utilities prior to any drilling: (1) Underground Service Alert (USA); (2) site maps and drawings (when available); (3) private utility locators (unless utility location services are provided by others); (4) site markings and conditions; (5) hand-probing or excavating to a depth of at least 4 feet; and (6) site personnel familiar with the history of site usage (when available). Be especially wary of electrical, natural gas, and product lines. **NEVER rely solely on site drawings or site personnel to determine the exact location of buried utilities.**
- Observe safe distances from overhead utilities of at least 10 feet. In accordance with OSHA requirements, greater distances are required for overhead lines carrying greater than 50,000 volts. Greater distance should also be maintained if there is a risk that stray or broken (snapped) cables could come into contact with electrical lines.
- At sites where non-project personnel may be present, properly demarcate the area to be excavated with barricades, fencing, and/or flagging. When appropriate, post warning and "No Smoking" signs conspicuously, and enforce them.
- Fire extinguishers (at least one, 10-lb. ABC) must be on site and readily accessible at all times.
- All drilling locations should be verified and marked by an authorized person.
- When drilling at active facilities, contact the area supervisor in advance to advise him/her of the activities.
- Locate emergency shut-off valves and switches, and (if present) confirm that the drilling crew knows where they are and how to use them.
- When drilling near tanks, determine tank location, depth and product levels, and continue monitoring product levels during drilling activities. The minimum distance to drill between or adjacent to tanks is 18 inches. Eight-inch augers should be the maximum size for initial drilling. Hand excavation should be done to the tank-top depth (but in no case less than 4 feet).
- Drill rig must be properly grounded at all times.
- Drilling in or near streets should be performed according to city or state provisions.
- Drilling should stop if any of the following conditions are encountered: (1) levels of contamination that are significantly higher than those contemplated in the Site Health and Safety Plan; (2) unknown substances that are not contemplated in the Site Health and Safety Plan; (3) explosive atmospheres (exceeding 10% of the lower explosive limit); or (4) utility

lines. In such instances, all operations will stop until the situation is evaluated with the Site Safety Officer, and the Project Manager or Office Health and Safety Coordinator have been notified. All drilling and sampling equipment should be left in the ground, equipment should be turned off, and cuttings and samples should be containerized, if necessary.

3.2 Groundwater Sampling

During groundwater sampling activities, wear the appropriate protective gear for the operation. Be careful when opening wells, pipes, or valves that may have become pressurized. Vent off the pressure if possible, or provide shielding to avoid splashing of materials. Keep face away from well heads. Be careful when opening well covers. Watch for spiders, wasps and other insects. Exercise caution when opening or handling sampling containers containing acid (hydrochloric, nitric, sulfuric) preservatives. Do not allow sampling containers containing acid to sit in the sun. Warmed acids may fume when the containers are opened causing irritation to the eyes, nose and throat.

3.3 Soil Sampling

During soil sampling activities wear the appropriate protective gear for the operation. Make sure others on site (especially equipment operators) know where you are and that you maintain line-of-sight contact. During geoprobe drilling operations, stand upwind of the active area of soil movement and as far away as is practical. During collection of soil samples, minimize contact with soil with your clothing and body.

3.4 Physical Hazards

Physical hazards at the site can be posed by:

- Heavy Equipment;
- Trenching/Excavation;
- Heat/Cold Stress;
- Weather;
- Dangerous Animals, Insects, and Plants;

- Slip, Trip, and Fall;
- Proximity to Water;
- Overhead Utilities;
- Underground Utilities;
- Fire; and
- Traffic.

Injuries that may result from these physical hazards can range from simple slip-trip-fall types of accidents to casualties, including fatalities due to moving heavy equipment or electrocution. Injuries resulting from physical hazards can be avoided through the adoption of safe work practices and employing caution when working with machinery.

All field personnel shall be conscious of their work environment and should notify the Project Manager or other appropriate supervisory personnel of any unsafe conditions. The PM will be responsible for informing all workers of any physical hazards related to the site. All field personnel should also familiarize themselves with other contractors safety procedures. The above mentioned physical hazards are discussed in the following sections.

3.4.1 Heavy Equipment

Operation of heavy equipment in drilling activities presents a potential physical hazard to personnel. Personal protective equipment (PPE) such as steel-toed boots, safety glasses or sunglasses, and hard hats should be worn whenever such equipment is present. Personnel should at all times be aware of the location and operation of heavy equipment, and take precautions to avoid getting in the way of their operation. High visibility vests may be appropriate in open areas subject to heavy equipment traffic.

3.4.2 Trenching/Excavation

Trenches and excavations may pose a physical hazard to site personnel. All trenching and excavation work shall comply with the requirements of 29 CFR 1926, Subpart P. No worker shall enter an excavation without ensuring that the excavation and procedures comply with 29 CFR 1926. The

Contractor shall train any personnel that may enter an excavation in safe practices. Some requirements for safe trenching are:

- Whenever possible workers will not go into trenches or excavations.
- Any excavations and/or trenches exceeding five (5) feet in depth and in which personnel may be entering must be sloped, shored, braced or otherwise supported. Sloping angles and/or shoring/bracing requirements shall be determined after an inspection of the soils and conditions by a competent individual. The water content of the soil, the soil type, degree of compaction, superimposed loads and vibration can effect the stability of a trench excavation. Support systems shall be planned and designed by a qualified person.
- Excavations and trenches will be inspected by a competent person before workers enter them. Furthermore, daily inspections shall be made and trenches shall be reinspected after every rainstorm or other hazard-increasing event.
- Excavated materials (spoils) shall be stored at least two feet or more from the edge of the excavation, or otherwise retained, in order to prevent this material from falling into the excavation.
- In locations where oxygen deficiency or hazardous gaseous conditions are possible, air in the excavation or trench shall be tested. Controls shall be established to assure acceptable atmospheric conditions. When flammable gases are present, adequate ventilation shall be provided or sources of ignition shall be eliminated. Attended emergency rescue equipment, such as breathing apparatus, a safety harness and line, basket stretcher, etc., should be easily available where adverse atmospheric conditions may exist or develop in an excavation or trench. A log of all test results shall be maintained.
- When employees are required to be in trenches four feet deep or more, an adequate means of exit, such as a ladder or steps, will be provided and located no more than 25 feet from any work area.

3.4.3 Heat/Cold Stress

Adverse weather conditions are an important consideration when planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Whenever ambient air temperatures are above 70°F or below 50°F, the following protocols will be observed.

When air temperatures exceed 70°F, the following general practices will be followed:

- Site workers should consume sufficient fluids to remain hydrated;
- In hot weather, activities which will require the use of protective clothing will be performed in the early morning or late afternoon, when practical; and

- In hot weather, the number of workers required to wear protective clothing will be minimized, as practical.

Symptoms of heat stress are: cramping; pale or clammy skin; tiredness or weakness; headaches, nausea or dizziness; fainting; high body temperature; hot, red or dry skin; rapid, weak pulse; or unconsciousness. If symptoms of heat stress are noted for a worker, the worker will take a break in an air-conditioned building or shaded area and be given cooled drinks. The worker should rest for at least five minutes in an air-conditioned building or in the shade before resuming work.

When air temperatures are below 50°F, cold stress will be monitored for all workers. The most important factor in the prevention of cold stress is the wearing of adequate clothing. The FS/HSO will be responsible for informing all workers if their protective clothing is inadequate. In addition, when working in cold temperatures the following procedures will be observed:

- Frequent breaks or rest periods will be provided and workers will have a shelter from wind and moisture;
- Hot drinks may be provided; and
- Opportunities to change out of wet clothing or to don additional clothing will be provided.

Workers will self-monitor themselves and co-workers for signs of cold stress. Symptoms of cold stress are: shivering; numbness; low body temperature; drowsiness; and weakness. Workers with symptoms of cold stress will take at least a ten-minute break in a heated building or vehicle and drink warmed liquids (i.e., hot cocoa, soup, etc.) before resuming work.

3.4.4 Weather

It is an MFG policy that field work be conducted under safe conditions. Rain, snow and/or high wind conditions may occur during the time period of a scheduled work activity, depending upon the location of a given jobsite.

All employees will be trained in the hazards of exposure to cold and/or wet conditions. Protective clothing for wet conditions will be utilized as necessary. Heavy rains, high winds or other weather

conditions may result in the cessation of site activities, at the discretion of the Project Manager or Field Supervisor.

3.4.4.1 Lightning and Thunderstorms

Outdoor operations will be suspended when lightning is within a 15 second count of the site (i.e., the time difference between seeing a lightning strike and hearing the sound). High profile equipment operation, such as drill rigs, shall be suspended when lightning is within 30 seconds of the site. Equipment operators shall stop their equipment and park it safely before heading for shelter. No personnel will be left on the ground in an exposed location. Preferred shelter during thunderstorms is a permanent building. Personnel may also take shelter in trailers or low profile rubber tired equipment (e.g., pickups). Avoid driving pickups or any other equipment, except to help evacuate personnel.

Thunderstorms always have the potential for down bursts and hail. Weather forecasts should be monitored frequently for changing weather conditions. Work may resume after a 30 minute period without lightning occurring within the 15 or 30 second count specified.

3.4.4.2 Tornadoes

The Field Supervisor will ensure that a dedicated watch is posted during periods of tornado watch or warning. Personnel will be evacuated to permanent structure when necessary. During tornado warnings, refuge should be sought in buildings under archways, tables or in closets below ground level or on the main floors. If the tornado is too close to evacuate to a permanent structure, refuge should be sought in low areas such as ditches. Field Supervisors must always be aware of changing weather conditions.

3.4.4.3 Snowy Weather, Ice Storms and Blizzards

Extra care must be taken by site workers during snowy weather. Adequate protective clothing must be donned. Site workers must be allowed rest periods in warm shelters at regular intervals. Vehicle

speeds on site will be limited to below 10 mph during snowy conditions. All work shall be suspended under blizzard conditions and site workers shall immediately seek warm, sturdy shelters, such as buildings.

3.4.5 Dangerous Animals, Insects, and Plants

The Simplot Plant Area is mainly industrial in setting. In warm months, workers must be prepared for mosquitoes, ticks, chiggers, yellow jackets and other insects and for snakes. At the end of the workday, workers should check their legs and scalp for ticks or other insects.

Animal bites and insect stings are usually nuisances (i.e., localized swelling, itching, and minor pain) that can be handled with first-aid treatments. The bites of certain snakes and spiders contain sufficient poison to warrant medical attention. There are diseases that can be transmitted by insect and animal bites. Examples are Lyme disease (tick), rabies (mainly dogs, skunks and foxes), malaria, and equine encephalitis (mosquito). The greatest hazard and mot common cause of fatalities from animal bites, particularly from bees, wasps, and spiders, is a sensitivity reaction. Anaphylactic shock due to stings can lead to severe reactions in the circulatory, respiratory, and central nervous systems, which can also result in death.

In addition, the project site is located in geographic area where Lyme disease and rabies are possible. Lyme disease is spread primarily by a very small tick – the deer tick. It can be found near wooded areas, tall grass and brush. Although the disease is rarely fatal, it can cause flu-like symptoms, arthritis, heart arrhythmia's, facial palsy, severe headaches, and loss of sensation. Protection against the tick consists of wearing clothing that covers the whole body, tucking pant legs into boots or socks and tucking a long-sleeve shirt into pants. A white Tyvek is recommended for protection. Use of repellents containing DEET is also effective. It is also important to frequently check for the ticks, which are about the size of a period on this page. Some warning signs include a "bull's eye" rash that may appear days to weeks after the bite, flu-like symptoms, swelling and pain in joints and, less common, heart arrhythmia, weakness in legs, facial paralysis and numbness. If employees feel they may have contracted the disease, they must notify the Corporate Health and Safety Director.

The most dangerous toxic effects from plants are due to ingestion of nuts, fruits, or leaves. Consequently, personnel are prohibited from eating any fruits, nuts, or other plant material, which may grow on the site. Of more concern to response personnel are certain plants including poison ivy, poison

oak, and poison sumac, which produce adverse effects from direct contact. The usual effect is dermatitis, an inflammation of the skin. The protective clothing and decontamination procedures used for chemicals reduce the exposure risk to the plant toxins. Cleaning the skin thoroughly with soap and warm water immediately after contact will reduce risk.

3.4.6 Slip, Trip and Fall

Protection from slip, trip and fall hazards will be provided through standard safety procedures including good housekeeping. Removing equipment and debris, and taking general precautions during site operations will be standard operating procedures. Workers will be apprised of any potential trip hazards through regularly scheduled health and safety meetings. Whenever possible, trip and fall hazards will be eliminated or clearly identified with yellow "caution" tape. Impalement hazards to workers will be neutralized as soon as they are identified.

3.4.7 Proximity to Water

Field activities on or near ponds or other surface waters pose a potential drowning hazard. The hazard is addressed in 29 CFR 1926.106: "Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jackets or buoyant work vests." Workers working over water in boats will be required to don a life vest. Workers working near water will not be required to wear life vests; however, life vests will be available within 50 feet of the work activity.

3.4.8 Overhead Utilities

Before site activities begin, all overhead utilities will be identified and field verified. As necessary, utilities will be deactivated, or operational procedures and site logistics will be established to avoid overhead lines. This will be the responsibility of the contractor and will be approved by the PM. The contractor will be responsible for operation of equipment in a safe manner and follow the relevant regulations of 29 CFR 126.550. These regulations include, but are not limited to:

- All electrical equipment and lines shall be de-energized;
- Assume that all overhead lines are energized unless de-energized by the person owning the line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded; and
- No hoisted loads shall be left unattended.

The deactivation of utilities, when necessary, should be certified by the proper utility company personnel and the certification record retained. If operation near overhead lines is necessary, Table 1 provides minimum clearance that is required for specific lines.

3.4.9 Underground Utilities

Before drilling activities begin, all utilities (i.e., electricity, natural gas lines, water lines, sewer lines, etc.) should be identified and deactivated as needed. If possible, natural gas lines should be purged to remove all potentially explosive gas. The deactivation of utilities, when necessary, should be certified by the proper utility company personnel and the certification record retained. Location of the utilities and any deactivation will be the responsibility of the contractor and will be coordinated with the PM.

3.4.10 Fire Prevention

Fire extinguishers shall be provided in the field vehicle and shall be available onsite. All extinguishers will be inspected, serviced, and maintained. Inspections shall be recorded on the inspection tag attached to each extinguisher.

3.4.11 Traffic

Vehicle traffic will maintain a safe speed (obey the posted Don Plant speed limit signs) while operating on site. Occupants of any MFG vehicle shall wear seatbelts at all times. Vehicles and equipment will be equipped with the safety procedures outlined in 29 CFR 1926.601. Heavy equipment will be equipped with an adequate audible warning device and have a reverse sign alarm audible above the surrounding noise level. Precautions will be made to warn foot traffic or other vehicles as necessary.

3.5 Chemical Hazards

Results from previous sampling performed at the site indicate that contaminant hazards may be encountered at the site during field activities. These hazards include:

- Arsenic (groundwater and Dewatering Pit activities), and
- Beryllium (Dewatering Pit activities).

MSDSs for some of these contaminants of concern can be found in Appendix E.

Chemical substances in gaseous, liquid, or solid form can enter the unprotected worker by inhalation, skin absorption, ingestion, or through a puncture wound (injection). A contaminant can cause damage at the point of contact or can act systemically in different parts of the body.

Chemical exposure by inhalation is a concern since the lungs are extremely vulnerable to chemical agents. In addition, substances can pass through lung tissue into the bloodstream and onto other susceptible areas of the body. Since some toxic chemicals are not detectable by human senses, their toxic effects may not produce any immediate symptoms. Respiratory protection is therefore extremely important if there is a possibility that the worksite atmosphere may contain such hazardous substances.

The skin and eyes also represent important routes of exposure. Some chemicals directly affect the skin, while others may pass through the skin into the bloodstream where they can be transported to other vulnerable organs. Skin absorption is enhanced by abrasions, cuts, heat, and moisture. The eye is particularly vulnerable because airborne chemicals can dissolve on its moist surface and be carried to the rest of the body via capillaries located very close to the surface of the eye. Protection against skin and eye contact may be provided by:

- Wearing protective equipment (i.e., Tyvek coverall suits);
- Wearing protective safety glasses or goggles;
- Avoiding the use of contact lenses in contaminated atmospheres since they may trap chemicals against the eye surface;
- Keeping hands away from the face; and
- Minimizing contact with liquid and solid chemicals.

Inadvertent ingestion can occur as a result of personal habits such as chewing gum or tobacco, drinking, eating, smoking cigarettes, and applying cosmetics. These practices may provide a route of entry for chemicals and are restricted.

Occupational guidelines for contaminants of concern at the site are presented in Table 2. Permissible Exposure Limits (PELs) are enforceable standards promulgated by OSHA and represent the 8-hour time-weighted average above which workers may not be exposed.

Threshold Limit Values-Time Weighted Average (TLV-TWA) values are the time-weighted average concentration for a normal 10-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect. Threshold Limit Value-Short Term Exposure Limit (TLV-STEL) values are the concentrations to which workers can be exposed intermittently for short periods of time (15 minutes or less) without suffering from: 1) irritation; 2) chronic or irreversible tissue damage; or 3) narcosis of sufficient degree to increase the likelihood of accidental injury, impair self-rescue or materially reduce work efficiency, and provided that the daily TLV-TWA is not exceeded. TLV-TWA are established by the American Conference of Governmental Industrial Hygienists (ACGIH, 1995) and provide the basis for safety regulations of OSHA. The Immediately Dangerous to Life and Health (IDLH) limit (NIOSH, 1999) is defined as the maximum concentration of toxic substance from which escape is possible without irreversible harm should a worker's respiratory protective equipment fail.

3.5.1 Arsenic

Arsenic is a liver-gray or tin-white, brittle, odorless metal, which is insoluble in water. It is present at the site primarily in residual Dewatering Pit solids and in groundwater at levels, which are predicted to be of health concern if exposed for many years. Routes of entry include inhalation, skin absorption, skin and/or eye contact, and ingestion. Symptoms of exposure are ulceration of the nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, and hyper-pigmentation of the skin. Arsenic is a potential occupational carcinogen. Target organs from exposure include the liver, kidneys, skin, lungs, and the lymphatic system. The OSHA Action Level for arsenic is 0.005 mg/m^3 (5 ug/m^3) averaged over an 8-hour period.

3.5.2 Beryllium

Beryllium is a hard, gray-white, brittle solid metal. It is present at levels predicted to be of concern if exposed for many years. Routes of entry include inhalation, skin and/or eye contact, absorption, and ingestion. Symptoms of exposure include berylliosis through chronic exposure; weight loss, chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency, irritated eyes and dermatitis. Target organs from exposure include the eyes, skin, and respiratory system. The OSHA Action Level for beryllium is 0.002 mg/m^3 averaged over an 8-hour period.

3.5.3 Other Contaminants of Concern At The Site

Other contaminants may be encountered during the course of the site activities. If unusual odors or conditions are encountered, personnel should suspend work activities and contact the PM or Corporate Health and Safety Director for guidance before proceeding.

3.5.4 Other Miscellaneous Items

The major chemical hazards have been discussed above, however, other potential chemical hazards may be encountered during site activities. One potential chemical hazard is laboratory packing chemicals or acid preservatives that may be required for sampling. Also, chemicals used during decontamination, such as Alconox, are irritating to the skin and respiratory system and should be handled appropriately.

3.5.5 General Precautions

If signs of contamination different from those addressed in this HASP are encountered, such as visible soil stains or unusual odors, stop all work in the area, barricade or otherwise isolate the area, and immediately contact the Project Manager. Protection of worker health and safety shall be the first priority. Continuation of work in the area and the amount of additional personal protective equipment, if any, shall

be determined by the Project Manager. Other precautions to be undertaken to provide a safe work place on this project where the potential for chemical exposure may exist include:

- No smoking, eating, or drinking in areas where contaminants may be present;
- Avoid the area immediately downwind of any drilling activities;
- Contact with contaminated materials, i.e., groundwater, should be minimized through the knowledge of site conditions and the location of potential contamination based on previous site investigation reports; and
- Adequately barricade or mark-off all work zones to provide for public safety.

4.0 PERSONNEL TRAINING REQUIREMENTS

4.1 General Training

Prior to initiation of site activities, all MFG field personnel shall have completed an initial 40 hour Hazardous Materials Health and Safety Course and 8-hour annual refresher course(s), as appropriate. All field personnel shall also have a minimum of three days of actual field experience under the direct supervision of a trained, experienced supervisor.

The Site Supervisor shall have completed at least eight additional hours of specialized supervisor training as per 29 CFR 1910.120 (e)(4). All courses shall have been conducted by a qualified trainer as specified in 29 CFR 1910.120 (e)(5). These courses should cover chemical hazards, hazard recognition, hazard assessment and personal protective equipment. If necessary, the site Health and Safety Officer (HSO) will have been trained in standard first aid measures and CPR.

All personnel who may participate in the site activities shall be required to have completed appropriate training as specified in 29 CFR 1910.120 (e)(3) prior to the initiation of site activities. The supervisor-training requirement will also apply to the subcontractor supervisors. The subcontractor shall provide MFG with copies of written certificates documenting said training. Copies of training certificates for on-site personnel will be kept at the site in the possession of the PM during the performance of site activities.

Simplot personnel performing or supervising field-work have undergone safety training relevant to hazards associated with chemical used and produced in Don Plant processes and will follow Simplot safety training guidelines and procedures when participating in the work.

4.2 Site Informational Programs

Prior to the initiation of each phase of field work, all MFG personnel and subcontractors who will participate in the site investigation shall attend a pre-entry briefing. The pre-entry briefing will review information contained in this HASP, including:

- Names of personnel responsible for site safety and health;
- Safety and health concerns, including physical and chemical hazards present at the site;
- Use of personal protective equipment;
- Work practices by which the employee can minimize risks from hazards;
- Engineering controls and safe use of equipment on site;
- Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards;
- Site control measures;
- Site decontamination procedures;
- Emergency response procedures; and
- Spill containment procedures.

In addition, all persons participating in field activities shall be required to read this HASP and sign the safety compliance agreement form found in Appendix A. Information discussed at the pre-entry briefing will be reinforced, in turn, during tailgate safety meetings (see below). Additional pre-entry briefings may be required for additional phases of work or if new personnel are assigned to the project.

Tailgate safety meetings will be conducted as necessary, or whenever new personnel arrive and/or when a unique work assignment warrants employee training. Tailgate safety meetings will be conducted by the PM. These meetings will cover the projected work for the day or the specific task and will review and reinforce good safe work practices (e.g., proper protective clothing, effective deterrents of heat stress, etc.). Information discussed at the tailgate safety meetings may be revised and updated, based on any new data obtained pertaining to site characterization and analyses.

An attendance record will be kept for the pre-entry briefing and for all subsequent tailgate safety meetings. In addition to documenting the persons in attendance, these records will include the date and time of the meeting and the subjects covered. A sample safety meeting attendance form is included in Appendix D.

5.0 PERSONAL PROTECTIVE EQUIPMENT PROGRAM

5.1 Personal Protective Equipment Program

MFG has developed and implemented a personal protective equipment (PPE) program to comply with the requirements of 29 CFR 1910.120 (g)(5). This PPE program contains procedures for:

1) PPE use and limitations;

2) PPE maintenance and storage;

3) PPE decontamination and disposal;

4) PPE training and proper fitting;

5) PPE donning and doffing;

6) PPE inspection prior to, during, and after use;

7) Evaluation of the PPE program effectiveness; and

8) Limitations during temperature extremes and heat stress, and other appropriate medical considerations.

The PPE program also includes a respiratory protection program (RPP) that complies with 29 CFR 1910.134 and EPA Order 1440.1. The RPP contains procedures for documentation of respirator fit testing. The MFG personal protective equipment program is included herein as Appendix E. Copies of OSHA training and refresher course training documentation for onsite personnel will be kept by the Project Manager in the project files.

In designating the level of PPE for the site activities, the degree of risk for the four basic routes of exposure (inhalation, skin absorption, ingestion, and eye or skin contact) to potentially hazardous substances was evaluated. When the established permissible exposure levels (PELs) are exceeded, certain procedures will be taken to reduce potential exposure. Engineering controls are to be implemented first whenever possible. When engineering controls are not possible or prove to be insufficient, PPE will be used to limit potential exposure.

5.2 Personal Protective Equipment Levels

The following sections describe the levels of personal protection for field work at the site. These levels are based upon the physical and chemical hazards at the site (Section 3.0). All site field activities are anticipated to be performed in Level D or modified Level D protection. The level of personal protection worn by field personnel will be defined, controlled, and implemented by the PM. Protection may be upgraded or downgraded by the PM, as deemed necessary throughout the project.

5.2.1 Level D Personal Protection

Level D personal protective equipment is basic and includes the following:

- Blue jeans, cotton t-shirt with 4" sleeves;
- Work gloves;
- Steel-toe work boots (conforming to ANSI Standard Z 41.1); and
- Hard hat (conforming to ANSI Standard Z 89.1).

5.2.2 Modified Level D Personal Protection

Modified Level D personal protective equipment may include the following:

- Blue jeans, cotton t-shirt with 4" sleeves;
- Work gloves (disposable nitrile or cotton, depending on task);
- Steel-toe work boots (conforming to ANSI Standard Z 41.1) with rubber covers, if necessary;
- Hard hat (conforming to ANSI Standard Z 89.1);
- Safety glasses or sunglasses (conforming to ANSI Standard Z 87.1);
- Hearing protection (when excessive noise greater than 85 dBa is present); and
- Disposable Tyvek coveralls (exchanged when heavily soiled or after breaks, at least once per work day).

5.3 PPE Deviation/Modification

Protection levels may be upgraded, downgraded, or modified as deemed necessary by the FS/HSO based upon work task or site-specific, safety-related factors such as:

- When excessive noise levels exceed 85 dBa;
- Change of season/weather;
- When temperature extremes or individual medical considerations (i.e., heat stress, medication, etc.) limit the effectiveness of PPE; or
- Contaminants other than those previously identified are encountered.

5.4 Limitations of PPE

PPE ensembles designated for use during work tasks have been selected to provide protection against contaminants at known or anticipated concentrations in soil or water matrices. However, no protective garment, glove, or boot is chemical-proof, nor will it afford protection against all types of chemicals. Permeation of a given chemical through PPE is a complex process governed by contaminant concentrations, environmental conditions, physical condition of the protective garment, and the resistance of a garment to a specific contaminant. Chemical permeation may continue even if a garment is resistant to a specific contaminant and may continue even after the source of contamination has been removed from the garment.

In order to obtain optimum usage from PPE, the following procedures are to be followed by all site personnel using PPE:

- When using disposable Tyvek coveralls, don a clean, new garment after each rest break or at the beginning of each shift;
- Inspect all clothing, gloves, and boots both prior to and during use for:
    - Imperfect seams;
    - Nonuniform coatings;
    - Tears; and
    - Poorly functioning closure.
- Inspect reusable garments, boots, and gloves both prior to and during use for:
    - Visible signs of chemical permeation;
    - Swelling;

- Discoloration;
- Stiffness;
- Brittleness;
- Cracks;
- Any sign of puncture; and
- Any sign of abrasion.

Reusable gloves, boots, or coveralls exhibiting any of the characteristics listed above will be discarded. PPE used in areas known or suspected to exhibit elevated concentrations of contaminants will not be reused and will be discarded.

5.5 Donning of PPE

A routine will be established and followed at the site for donning PPE. The procedures will be discussed in detail during the site safety meeting before starting the project and briefly during periodic site safety meetings.

Before wearing any level of PPE, it will be checked that it is in proper condition for the purpose for which it is intended. Also, workers with any minor injuries and/or openings in the skin surface, such as cuts and scratches, will be attended to in order to protect such areas which may potentially enhance exposure effects. Workers with large cuts, rashes, or other such skin damage will not be allowed to don PPE.

6.0 MEDICAL SURVEILLANCE REQUIREMENTS

MFG has developed and implemented a medical surveillance program to comply with the requirements of 29 CFR 1910.120 (f). This program requires annual medical monitoring (including pulmonary function evaluation) for all MFG field personnel. Records for this program are kept in compliance with the requirements of 29 CFR 1910.120. These records include:

- The name and social security number of the employee;
- Physician's written opinions, recommended limitations, and results of examinations and tests;
- Any employee medical complaints related to exposure to hazardous substances; and
- A copy of the information provided to the examining physician by the employee.

The MFG Medical Surveillance Program is reproduced in Appendix F. Subcontractors will be required to have medical surveillance programs that comply with 1910.120 (f).

7.0 SITE CONTROL MEASURES

The site control measures program is designed to minimize the exposure of personnel to potentially hazardous substances and/or situations. In this section, the term "site" refers to the immediate work area and not to the Don Plant or Simplot Plant Area. This objective will be accomplished by the establishment of work zones, the proper decontamination of personnel and equipment, and proper maintenance of safety equipment. In addition, all Don Plant health and safety requirements will be followed at all times while at the site.

7.1 Safe Work Practices

The following general safe work practices will apply during site activities:

- Personnel will not eat, chew gum or tobacco, smoke, take medicine or perform any other practice that increases the likelihood of hand-to-mouth transfer of potentially hazardous substances from gloves, unwashed hands or equipment.
- No one is to carry "strike-anywhere" matches or cigar/cigarette lighters.
- Personnel will stand upwind of all intrusive activities involving disturbance of the ground surface (e.g., drilling).
- Breaks will be offered to all site workers. A five-minute break per hour may be taken by any worker, although it is not mandatory.

First aid supplies and water will be located onsite.

7.2 Site Security/Fencing

The site is within the Don Plant, which is fenced

7.3 Safety Equipment Maintenance

All safety equipment will be checked on a routine basis. This equipment includes such items such as barricades, fire extinguishers, and any safety warning signs posted throughout the site.

7.4 Disposal of Waste

Following completion of site activities, Tyvek coveralls, gloves, plastic sheeting and other disposable items will be placed in large plastic bags and containerized in 55 gallon drums. Water from drilling, sampling, or decontamination operations will be contained on-site in 55 gallon drums and disposed of in the Don Plant process as directed by Simplot personnel.

7.5 Sanitation

An adequate supply of potable water will be provided for all site workers in portable containers. Toilet and washing facilities are located at the site.

8.0 DECONTAMINATION PLAN

8.1 Personnel Decontamination

Decontamination and maintenance of personal protective equipment is required for proper functioning of the equipment. At a minimum, nitrile gloves and Tyvek coveralls shall be replaced daily or after breaks; if they become damaged, they shall be replaced immediately.

The decontamination areas will be established prior to initiation of field activities, and the exact decontamination procedures will be established at that time based on field conditions, space considerations, etc. The above decontamination procedures apply only to activities where modified Level D PPE is required (e.g., intrusive activities). For other activities, such as walk arounds or site visits, a less rigorous decontamination procedure may be practiced, such as a thorough dry scrubbing of boots, etc.

8.2 Equipment Decontamination

Equipment used to excavate or handle contaminated site soils or water will be decontaminated. The decontamination of the equipment will be performed by steam cleaning with potable water or scrubbing with a detergent/potable-water solution. At the completion of site work, equipment will be decontaminated prior to leaving the site. Rinse water will be allowed to evaporate from the decontamination area, to the extent possible. While operating the steam cleaner, personnel shall wear, at a minimum, Tyvek coveralls, rubber boots, nitrile gloves and safety goggles (modified Level D personal protection).

9.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

The Don Plant is an operating industrial facility. Don Plant emergency response procedures will be followed during the project.

The required elements of an emergency response plan as specified in 29 CFR 1910.120(1) are listed below. As described in the regulation, many of these items primarily pertain to emergency responses at uncontrolled hazardous waste sites, and thus are not entirely applicable to the anticipated site activities, which do not constitute an emergency response situation. The contractor will be responsible for providing an emergency response plan for their activities. An explanation of how each plan element will be implemented at the site is provided below:

1) Pre-emergency planning - This emergency response plan will be provided to all personnel, including subcontractor personnel, working on the site during the pre-entry briefing. In addition, emergency response actions will be reviewed with all personnel during the pre-entry briefing and the tailgate safety meetings.

2) Personnel roles, lines of authority, and communication - The FS/HSO will be responsible for emergency coordination at all times. Any accidents and/or injuries shall immediately be reported to him. The FS/HSO will immediately report any accidents to the On-Site Simplot Project Manager and Don Plant Nurse.

3) Emergency recognition and prevention - Physical and chemical hazards at the site will be reviewed at the pre-entry briefing and the tailgate safety meetings.

4) Safe distances and places of refuge - Should emergency conditions arise requiring site evacuation, the FS/HSO will notify all on-site personnel immediately through the use of hand signals and verbal instructions.

5) Site security and control - Site security will be provided by the existing fence.

6) Evacuation routes and procedures - The FS/HSO will notify all on-site personnel of the need for immediate evacuation. Site evacuation will be performed in an orderly fashion under the direction of the FS/HSO.

7) Emergency decontamination procedures - In the event of a medical emergency, personnel decontamination prior to medical treatment may be omitted. Whenever possible, MFG personnel will accompany contaminated victims to the hospital to advise on matters involving decontamination. If on-site first aid is rendered and the victim does not require transport to the hospital, clothing and equipment decontamination as described in Section 8.0 will be performed after first aid measures have been performed.

8) Emergency medical treatment and first aid - Based on the severity of the injury/exposure, additional medical treatment will be obtained as described in paragraph 9 below.

9) Emergency alerting and response procedures - The procedures listed below will be used in the event of any site emergency:

   a) Remove any injured person(s) from immediate danger and administer first aid as needed.

   b) Simplot has Emergency Medical Technicians (EMTs) and ambulance to transport injured persons to the hospital. The required procedure is to call 5555 on a plant phone or (208) 234-5404 on a cell phone to activate the emergency response system. If a call to 911 is needed it will be made by the plant guards or responding EMTs. The FS/HSO will carry a cell phone at all times, and the nearest phone is located at the site. Directions to the hospital are presented in Figure 2.

   c) Notify PM before resuming work.

10) Critique of response and follow-up - Following any site emergency, the FS/HSO will prepare a written report for review by the PM, MFG Corporate Health and Safety Director and the client. In addition, any accidents or emergency incidents shall be reported to the relevant local, state and federal agencies by Simplot. The report will include a summary of the emergency, a description of the conditions that led to the emergency, a review of the response actions implemented following the emergency and a discussion of steps that might have been taken to prevent a recurrence of the emergency. In addition, any Simplot emergency reporting procedures will be followed. The PM will coordinate with Simplot's On-Site Project Manager on follow-up reporting.

11) PPE and emergency equipment - All personnel will be required to have complete Level D, and Modified Level D PPE ensembles available for use when onsite. In addition, the MFG PM will have available a first aid kit, a fire extinguisher and possibly a portable eyewash kit.

10.0 CONFINED SPACE ENTRY PROCEDURES

No confined space entry is anticipated during site activities.

11.0 SPILL CONTAINMENT PROGRAM

Potentially hazardous fluids that may be located on-site during the field activities are decontamination water and purged groundwater stored in drums. Water from decontamination efforts will be collected into drums. All containerized fluids will be clearly labeled as to their origin and date of generation. If a spill of containerized fluids occurs, the PPE level for response personnel will be modified Level D.

12.0 HAZARD COMMUNICATION

The Hazard Communication Act (29 CFR 1910.1200), commonly referred to as the "Worker Right to Know Act", was instituted by the Occupational Safety and Health Administration (OSHA) to reduce illness and injury caused by chemical exposure in the workplace.

12.1 Material Safety Data Sheets

The Simplot Don Plant maintains a chemical inventory list of all chemicals allowed on-site. It is mandatory that any chemicals proposed to be brought on-site be reviewed and approved by the Simplot On-Site Project Manager prior to initiation of field work.

MFG will inform its employees and subcontractors of potential hazards associated with chemicals brought to the site to perform various field activities. The information will be distributed in the form of Material Safety Data Sheets (MSDSs). Copies of the MSDS for each chemical brought to the site will remain onsite during the period that the chemical is being utilized. The Don Plant also maintains MSDSs for chemicals used and generated by their process. Safe handling practices and emergency first aid for each chemical will be discussed during the pre-entry briefing, tailgate safety meetings, etc. MSDS for contaminants of concern at the site are included in Appendix E. Laboratory preservative MSDS's will be maintained in MFG's Field Notebook.

13.0 REFERENCES

American Conference of Governmental Industrial Hygienists (ACGIH), 1995. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1995-1996*: Cincinnati, OH.

MFG, Inc. 2002. *Corporate Health and Safety Program.*

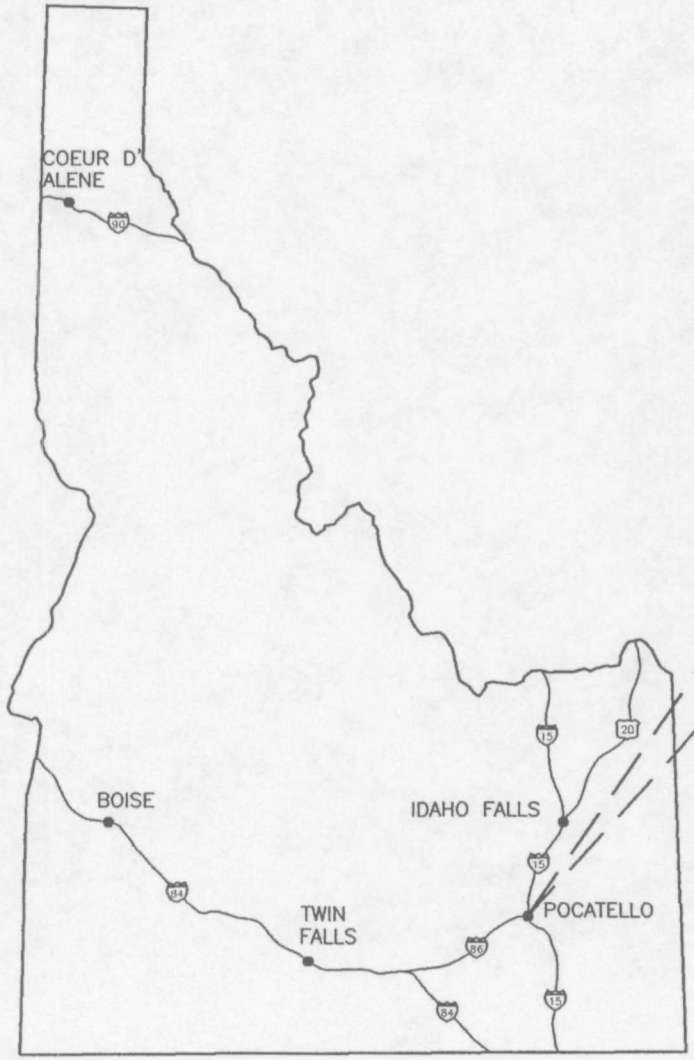
U.S. Department of Health and Human Services (NIOSH), 1999. *NIOSH Pocket Guide to Chemical Hazards: DHHS (NIOSH) Publication No. 99-140.* June 1999.

FIGURES

FIGURES

4/02 BY: RHF

EASTERN MICHAUD FLATS
SUPERFUND SITE VICINITY



IDAHO

SIMPLOT PLANT AREA
EASTERN MICHAUD FLATS
SUPERFUND SITE
POCATELLO, IDAHO

DESIGN FIELD WORK HEALTH AND SAFETY PLAN

FIGURE 1

SITE LAYOUT MAP

PROJECT: 010121.0	DATE: JULY 2002	
REV:	BY: RHF	CHECKED: AC

MFG, Inc.
consulting scientists and engineers

RFIELD D:\0121\0121-34.dwg 9999 8/30/02 11:21 am
Xrefs: [none]
Images: [none]
Plot time: 11:22 am
Plot date: 8/30/02

FIGURE 2

YAHOO! GetLocal Maps

Welcome, smallbluebug

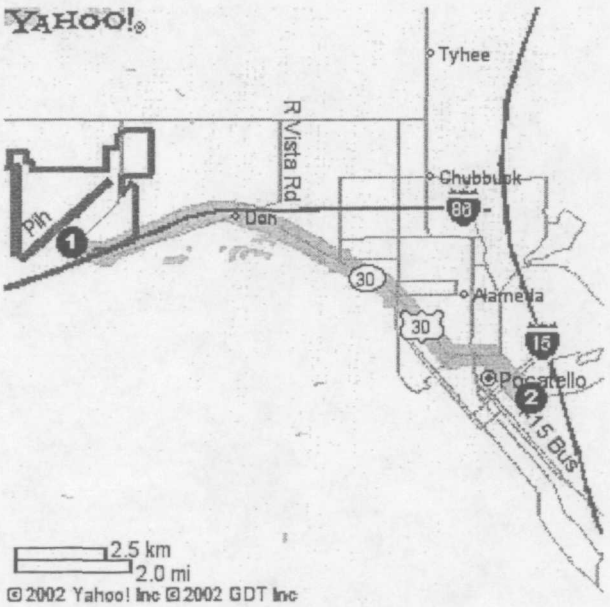
Edit/Create My Locations - Sign

Yahoo! Maps - Driving Directions

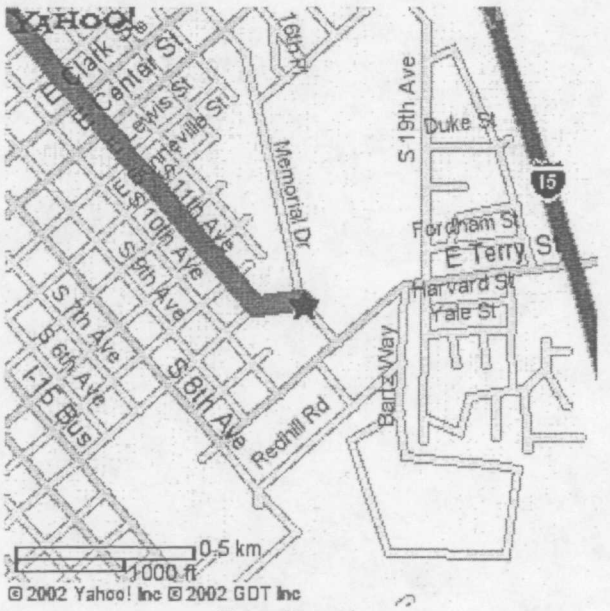
The starting address could not be found, so here are directions from the city center.

Starting from: 1130 West Highway 30, Pocatello, ID 83204-7510
Arriving at: ★ 651 Memorial Drive, Pocatello, ID 83201-4071
Distance: 9.3 miles **Approximate Travel Time:** 14 mins

- Email Directions
- Get Reverse Directions
- Text Only Driving Directio



Full Route



Destination

	Directions	Miles
1.	Start on **AIRPORT WAY**	0.1
2.	Turn Right on **TERMINAL WAY**	0.5
3.	Turn Left to take the **I-86 E** ramp	0.1
4.	Merge on **I-86 E**	2.1
5.	Take the Exit **58** exit	0.3

6.	Bear Right on **US-30**	4.8
7.	Continue on **E OAK ST**	0.3
8.	Turn Right on **N 11TH AVE**	0.6
9.	Continue on **S 11TH AVE**	0.4
10.	Turn Left on **E CARTER ST**	0.1
11.	Turn Right on **MEMORIAL DR**	0.0

When using any driving directions or map, it's a good idea to do a reality check and make sure the road s exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an a in planning.

Driving Directions New Locatio

1 Enter a starting address or select from My Locations

My Locations -- My Locations -- Edit

(Address, Intersection or Airport Code)

Address 1130 West Highway 30

City, State or Zip Pocatello, ID 83204-7510

Country United States

2 Enter a destination address or select from My Locations

My Locations -- My Locations -- Edit

(Address, Intersection or Airport Code)

Address 651 Memorial Drive

City, State or Zip Pocatello, ID 83201-4071

Country United States

Get Directions

FIGURE 2

YAHOO! GetLocal Maps

Yaho

Three Ways to Get Local: Maps Yellow Pages C

Welcome, smallbluebug

Edit/Create My Locations - Sign

Yahoo! Maps - Driving Directions

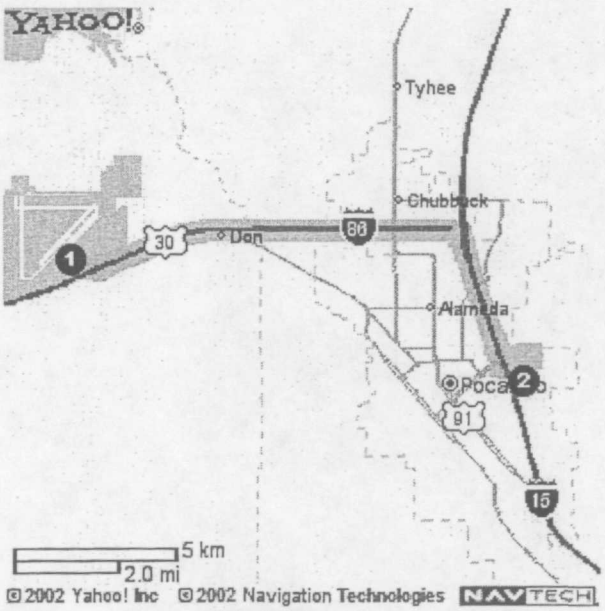
The starting address could not be found, so here are directions from the city center.

Starting from: 1130 West Highway 30, Pocatello, ID 83204-7510

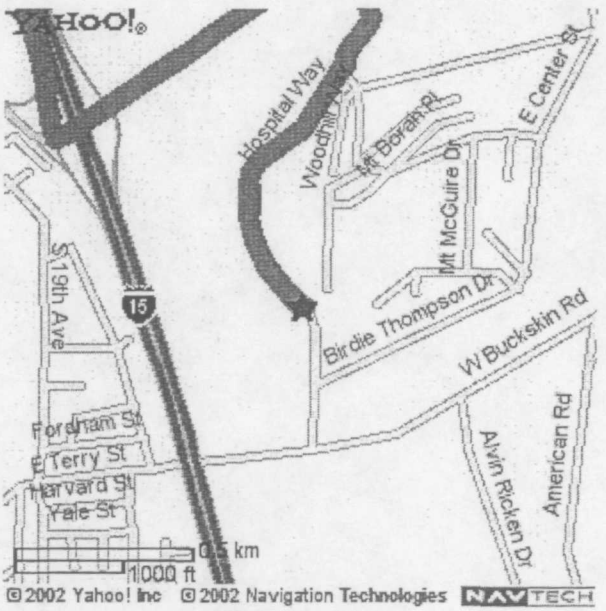
Arriving at: ★ 777 Hospital Way, Pocatello, ID 83201-2753

Distance: 11.4 miles **Approximate Travel Time:** 16 mins

- Email Directions
- Get Reverse Directions
- Text Only Driving Directio



Full Route



Destination

	Directions	Miles
1.	Start on **AIRPORT WAY**	0.1
2.	Turn Right on **TERMINAL WAY**	0.5
3.	Turn Left to take the **I-86/US-30** ramp	0.2
4.	Merge on **I-86 EAST**	6.5
5.	Take the **I-15 SOUTH** exit towards **SALT LAKE**, exit **#63A**	0.5

6.	Merge on **I-15 SOUTH**	1.8
7.	Take the **CLARK ST.** exit, exit **#69**	0.6
8.	Turn Left on **E CENTER ST**	0.7
9.	Continue on **HOSPITAL WAY**	0.5

When using any driving directions or map, it's a good idea to do a reality check and make sure the road s exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an a in planning.

Driving Directions New Locatio

1 Enter a starting address or select from My Locations

My Locations -- My Locations -- Edit

Address (Address, Intersection or Airport Code) 1130 West Highway 30

City, State or Zip Pocatello, ID 83204-7510

Country United States

2 Enter a destination address or select from My Locations

My Locations -- My Locations -- Edit

Address (Address, Intersection or Airport Code) 777 Hospital Way

City, State or Zip Pocatello, ID 83201-2753

Country United States

Get Directions

TABLES

TABLES

TABLE 1
REQUIREMENTS FOR EQUIPMENT OPERATION NEAR POWER LINES
(29 CFR 1926.550)

ACTIVITY	LINE RATING	MINIMUM CLEARANCE
Equipment Operation	≤50 kV	10 feet
	> 50 kV	10 feet + 0.4 inches per each kV over 50kV, or 2 times the length of the line insulator (minimum of 10 feet)
In transit with no load and beam lowered	≤50 kV	4 feet
	> 50 kV to ≤ 345 kV	10 feet
	345 kV to ≤ 750 kV	16 feet

Note: kV = kiloVolt

TABLE 2
OCCUPATIONAL GUIDELINES FOR SITE CONTAMINANTS OF CONCERN

CHEMICALS	ARSENIC	BERYLLIUM	REFERENCE
PEL	0.010 mg/m^3	0.002 mg/m^3	OSHA (1999)
TLV-TWA	-	0.0005 mg/m^3	NIOSH (1997)
TLV-STEL	0.002 mg/m^3 for 15 minute maximum	0.005 mg/m^3 with 0.025 mg/m^3 30 minute maximum peak per 8-hr shift	NIOSH (1997)
IDLH	5 mg/m^3 as As Carcinogen	4 mg/m^3 as Be Carcinogen	NIOSH (1997)

TABLE 3: NON-CHEMICAL HAZARDS

TASK/HAZARD	NON-CHEMICAL HAZARD DESCRIPTION
Working in Protective Gear	**Possible heat exposure, heat stress, dehydration, or sunstroke. Symptoms include heat rash, heat cramps, heat exhaustion, dizziness, nausea, faintness, and elevated body temperature. Personnel exhibiting symptoms of heat stress must stop work immediately and go and sit in the shade and rest for at least 15 minutes, and drink cool fluids or water.**
Sunburn	**Over-exposure to the sun can be prevented. Personnel will bring sunscreen with an SPF of least 30 with them to the field and apply it several times a day.**
Inclement Weather	**Cold exposure and hypothermia can result during wet or cold weather conditions. Symptoms of hypothermia include numb body parts (fingers, toes, ears, nose), uncontrollable shaking, slurred speech, impaired judgment and poor coordination. Personnel with any cold exposure symptoms must stop work immediately and get warmed.**
Drowning	**Field sampling activities along surface waters pose a potential drowning hazard. This hazard is addressed in US Coast Guard Regulation 29 CFR 1926.106: "Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jackets or buoyant work vests." Workers working over or in water greater than 3 feet deep will be required to don a life vest. Workers working near water (i.e., along the shore) will not be required to wear life vests; however, life vests will be available within 50 feet of the work activity. A rescue line must also be available.**
Stream Work	**Sampling activities may take place in or adjacent to streams and rivers. Hazards include slips, trips and falls resulting from underestimating the power of currents, stepping on slippery or potentially unstable rocks or logs, or slipping on steep banks and drop offs. Drowning could result from unconsciousness after a fall, being swept away by currents, becoming trapped under obstacles in deep, rapidly moving water, being pulled under if waders fill with water, or an inability to swim.**
Poisonous Plants	**Poisonous plants, such as poison ivy, may be present on site. Reactions to poisonous plant exposure vary depending on the individual and the severity of the exposure, and can range from minor skin irritation to severe allergic reactions (oozing rashes and swelling) that require medical attention. Skin protection such as Ivy Block is available in the field kit.**
Biting/Stinging Insects	**Wasps, bees, spiders, centipedes and other insects may be found on site. Wear insect repellent. Bites and stings from insects may be painful but generally are not dangerous, unless the individual bitten/stung is severely allergic. Some spiders such as the Black Widow and Brown Recluse can inflict a serious bite that should be evaluated by a medical professional.**
Ticks	**Ticks are small (2mm to 7mm), blood-eating parasites related to spiders that may reside in brushy or grassy areas. When an animal or person passes, the tick will jump onto the passing host and crawl around looking for a place to attach itself and begin**

	feeding. Tick bites can result in transmission of Lyme Disease, Rocky Mountain Spotted Tick Fever and other diseases, and may become infected. Lyme Disease can be a debilitating, long-term illness. All tick bites must be evaluated by a medical professional.
Small Animals	**Never approach animals, including dogs and cats. Many serious diseases can be transmitted from animals such as rabies, Hantivirus and Cat Scratch Fever. All animal bites must be evaluated by a medical professional.**
Snakes	**Snake bites can occur when snakes are inadvertently disturbed when stepping on or near them, or placing hands in crevices. Never handle a snake. Assume all snakes are poisonous. All snake bites must be immediately evaluated by a medical professional.**
Working Hours	**Normal working hours in the field are from 7am to 5pm. Personnel needing to work outside these normal working hours must first get permission from the Project Manager. Tasks involving extended work hours (i.e., after 5 pm) require the buddy system – at least 2 people must be present for nighttime work. Personnel may not work alone after dark.**

APPENDIX A

APPENDIX A

SAFETY COMPLIANCE AGREEMENT FORMS

SAFETY COMPLIANCE AGREEMENT FORM

MFG, Inc.
Personnel Form

PROJECT NO.: 010121

PROJECT TITLE: Simplot Plant Area Remedial Design

PROJECT TASK: Field Activities to Support Remedial Design

I have received a copy of the Site Health and Safety Plan (the "HASP") for the above referenced project. I have read the HASP and agree to comply with all the health and safety requirements contained therein. I understand that I may be prohibited from working on the project for violating any of the HASP requirements.

PRINT NAME:_____

SIGNATURE: _____ DATE: _____

NOTE: This form must be submitted to the Project Manager prior to beginning field activities.

SAFETY COMPLIANCE AGREEMENT FORM

MFG, Inc.
Subcontractor Form

PROJECT NO.: 010121

PROJECT TITLE: Simplot Plant Area Remedial Design

PROJECT TASK: Field Work to Support Remedial Design

The MFG Site Health and Safety Plan (the "HASP") provides guidance for site-specific safety requirements. It is not intended to replace any general or specific requirements of a contractor's safety program. MFG personnel will, to the best of their ability, inform contractors of any potential hazard(s) that has been identified during the field investigations. However, contractors will bear the ultimate responsibility for all matters dealing with health and safety in the performance of their appointed work. This responsibility will include, at a minimum, ensuring that their equipment is in proper working order and that their employee' s and/or authorized representatives are trained and medically fit in accordance with OSHA Standards 29 CFR 1910 and 29 CFR 1926, as appropriate. The contractor is also responsible for informing its' subcontractors of these requirements.

I have received a copy of the HASP for the above referenced project. I have read the HASP and agree to comply with all the health and safety requirements contained therein. I understand that I may be prohibited from working on the project for violating any of the HASP requirements.

PRINT NAME:_____

SIGNATURE: _____ DATE: _____

AFFILIATION: _____

NOTE: This form must be submitted to the Project Manager prior to beginning field activities.

APPENDIX B

APPENDIX B

HASP ADDENDA

THIS SECTION IS INTENDED TO BE BLANK AND IS RESERVED
FOR ADDITIONAL ADDENDA TO THIS HASP

APPENDIX C

APPENDIX C

PLANT SAFETY PROCEDURES AND REGULATIONS

Exhibit "A"

Notice to Contractors
"Regarding Plant Safety Procedures and Regulations"

J.R. Simplot Company
Don Plant
Minerals and Chemical Group
Pocatello, ID

The *J.R. Simplot Company* requires that *contractors* adhere to the following established procedures and plant regulations while doing work in the plant.

All *contractors* shall provide protection for all property and employees, including those of the *J.R. Simplot Company*, in accordance with Occupational Safety and Health standards for construction (29 CFR 1926) and plant policies.

In any emergency effecting the safety of personnel or property, the *contractor* shall (using discretion and without special instructions from Project Supervisor) immediately act to insure the safety of such personnel or property.

Prior to starting a job in the plant, an indoctrinating safety meeting must be held between responsible members of the *contractors* firm and responsible plant personnel, normally the *Safety Department*. The purpose of this meeting is to familiarize the *contractors* with plant conditions and regulations and to impress upon the *contractor* our requirement that all work to be done safely. This meeting will be arranged by plant supervision. In addition to the above, if the *contractor* makes arrangements for *sub-contractors* to perform work within the plant under the *contractors'* control, the *Simplot Safety Department* must be notified in advance. The original *contractor* is responsible to assure that the *sub-contractor* is thoroughly familiarized with plant conditions and regulations. The original (prime) *contractor* on any job is responsible to see that all employees working on the job are properly indoctrinated in all plant safety requirements.

Certain defined practices apply to all persons in the plant. Rules and regulations have been established to protect employees from potential hazards existing in the plant, and it is important for *contractors'* employees to observe these practices for their protection. This procedure has been prepared to give *contractors* the information needed to help the plant management administer a program of employee protection.

The violation of safety or plant regulations will necessitate a review by the *J.R. Simplot Company* of the *contractors'* fitness for continued work in the plant.

In order to fulfill our responsibility as a user of contracted services, we must have compliance with items on this page prior to the start of any job.

The *contractor* will furnish *J.R. Simplot Company, Don Plant Safety Department*, with a copy of (including but not limited to) the following information as it applies to the job or contract:

a. A copy of your safety program.

b. Employee training records on cranes, forklifts, backhoes and front end loaders.

c. A copy of your hazardous chemical communications program.

d. Material Safety Data Sheets (MSDS) for any chemicals or product intended to be brought into the plant for use on the job. Training records of employees in the use and understanding of MSDS.

e. Hazardous material handing program. Planned spill control and clean up methods.

f. Copy of current (annual) respirator fit test records. Physicians' statement qualifying the employee to wear respirator.

g. Names of employees with first aid training and emergency medical assistance training, such as CPR and control of bleeding.

h. Written proof of (current) insurance with coverages in amounts specified by the *J.R. Simplot Company.*

i. Identify and designate a competent person on your crew that knows the OSHA regulations pertaining to the safe erection of scaffolding, excavation and shoring procedures of trenches and foundations and regulations for the installation of barricades.

j. *Contractors* with ten (10) or more employees working in the plant must have at least one person designated to be in charge of safety for their company. He will be responsible for knowing and following the OSHA regulations for the construction and general industry. He must coordinate all projects with the general Project Supervisor or the Plant *Safety Department,* if the Project Supervisor is not available.

PLANT RULES FOR CONTRACTORS

This plant, like other companies, has rules of conduct that are to be followed for the safety of all workers.

Listed below are rules pertaining to *contractors* and plant personnel while on company property. The list is not intended to be all inclusive, but does represent many areas of concern.

If you have any questions regarding these or other plant rules, please contact the *Safety Department* or your assigned project engineer.

1. Bringing intoxicants or narcotics into, or consuming them on company premises is prohibited. Reporting to work under the influence of intoxicants or narcotics is prohibited.

2. The company will not tolerate workers fighting or assaulting each other on company property, including parking lots.

3. Destruction, defacing or theft of company property or theft of another workers' property, is prohibited. Attempted theft will be treated the same as actual theft.

4. Dishonesty or misrepresentation will not be tolerated.

5. Ignoring the job, sleeping or lying down is prohibited.

6. Personal radios or non-work related materials or magazines are not permitted in the plant.

7. Loitering or inhibiting other employees from performing their work is prohibited.

8. Gambling, sport pools and similar activities are prohibited.

9. Employees must conduct themselves in a manner consistent with recognized order and decency. Abusive or offensive language will not be tolerated.

10. Violation of company rules, safety or otherwise will not be tolerated.

11. Employees must report all accidents or injuries received on the job to the plant Safety/Medical Department as soon as possible.

12. Solicitation or distribution of literature shall not be allowed on plant property at any time.

13. No firearms are to be brought onto company property, including storage in locked vehicles.

SAFETY PROCEDURES AND REGULATIONS FOR CONTRACTORS

1. *EMPLOYEE CONTROL*

An up-to-date roster of all *contractors'* employees must be furnished to the Security Department by an authorized *contractor* representative. ***Each day*** a complete list of the employees they have at work will be submitted to the Guardhouse when they enter the plant. The *contractor* supervisor must also account for the employees remaining in the plant after normal working hours by a like communication with the Guards.

Authorization for admittance must be secured through the Project Supervisor at the beginning of a job. Such authorization shall normally be presented to the Guards by the Project Supervisor prior to the *contractors'* arrival for work.

Contractors' employees must remain in their designated work area and are not permitted into other parts of the plant unless specific permission has been given.

Contractors' supervisor shall personally escort their employees on their initial trip to the Storeroom or warehouse for materials or equipment. No lingering or aimless wandering through the plant will be tolerated.

2. *CONDUCT*

No person who appears to have been using drugs, medication or alcohol will be admitted or allowed to work in the plant. *Contractors'* employees found in the plant under the influence of alcohol or with any alcoholic beverage in their possession, may be permanently barred from the plant.

Gambling on company property is strictly prohibited at all times. Horseplay, such as scuffling, pushing, throwing objects or similar acts, is prohibited.

3. *VEHICLE CONTROL*

Vehicle entry into the plant requires prior authorization and such vehicles are subject to inspection by the guards. This authorization will be given by the Project Supervisor or other designee. The security guard will issue the appropriate *contractor* supervisor a sticker for each *contractor* authorized vehicle. These stickers must be renewed at the guardhouse on the first day of each new month the *contractor* is in the plant. The *contractor* will be responsible to see that the identifying stickers are placed on the authorized vehicles. It will be the *contractors'* responsibility to have proper insurance coverage for any vehicle that they place stickers on. Authorized vehicles are only those vehicles that are absolutely needed in the plant by the *contractor* to carry out their respective duties. Personal vehicles are not authorized to be at the construction facility.

All vehicles must stop at all railroad tracks.

The speed limit for motor vehicles in the plant is ***15 miles per hour***. *Contractors'* drivers must observe this speed limit and drive carefully, always being on the alert for pedestrians and other vehicles.

All personnel and vehicles are subject to search. A notice posted at the Guardhouse is printed below:

> *"All personnel and visitors are subject to search of any packages, lunch pails or other carried items entering or exiting from this plant. All vehicles are also subject to search when entering or exiting from this plant."*
>
> *"All searches will be conducted by Simplot Security personnel and we ask that you cooperate with the security personnel to help ensure everyone's protection."*

4. *EQUIPMENT SECURITY*

Contractors must keep tool shed and tool boxes locked at the end of each work day and are not to leave small tools lying around in operating areas. *J.R. Simplot Company* accepts no responsibility for lost or stolen tools.

5. *SMOKING REGULATIONS*

Smoking is not permitted in any building or certain posted areas in the plant. It may be necessary to designate a smoking area for *contractors'* employees.

6. *LOCK OUT/TAG OUT POLICIES AND PROCEDURES*

In order for a *contractor* to work on any equipment or machinery at the plant, the *contractor* will be required to review and use the *J.R. Simplot Company, Don Plant*, Pocatello, Idaho, "Lock Out/Tag Out Policies and Procedures". (If the *contractor* has a set of written guidelines, those guidelines will have to meet or surpass *Simplot* requirements and will have to be reviewed and approved by the *Safety Department* before work begins.)

The *contractor* will be required to:

1. Lock out/tag out all equipment worked on, using the locks, tags and adapters that meet J.R. *Simplot Company, Don Plant*, Pocatello, Idaho standards.

2. a. Understand the proper equipment, pipes, etc. to be locked out and drained of energy.

   b. Review the prints and drawings with the *Simplot* Project Supervisor to make sure the right equipment, pipes, etc., are secured.

7. *HAZARD COMMUNICATION*

The *contractor* shall provide the *Safety Department* with an inventory list, Material Safety Data Sheets and other appropriate information for all potential hazardous materials brought into the plant or used by their employees.

All *contractors* and their employees, while working at the *J.R. Simplot Company, Don Plant*, Pocatello, Idaho must comply with the OSHA "Right to Know" Hazardous Chemicals Communication Law.

The law was established to protect people from chemical exposure and in case of accidental exposure to show people where to find information on procedures to follow that eliminate and/or minimize any injures from that exposure.

The following information will help the *contractor* understand what is expected:

1. Location of chemical information:

   Hazard information booklets are located in all Control Rooms, Area Managers' offices, Maintenance Supervisors' offices, Stores office, Salvage/Reclaim office, with a master copy located in the *Safety Department* office. These booklets include introduction, glossary of terms, process description, labeling, tanks and vessels, chemical inventory lists and MSDS (Material Safety Data Sheets) for the area concerned.

2. Information contained on MSDS (Material Safety Data Sheets)

   The MSDS is broken down into sections as follows:

Section 1	Identification (name of chemical)
Section 2	Hazardous ingredients
Section 3	Component hazard data (physical data)
Section 4	Fire and explosion data
Section 5	Reactivity
Section 6	Health hazard data
Section 7	Sills and leaks
Section 8	Special protection
Section 9	Special precautions

   All chemicals used at the *Don Plant*, Pocatello, Idaho must have a MSDS label on them showing their name and number.

8. *EYE PROTECTION, SAFETY HATS AND SAFETY BOOTS*

Eye protection, safety hats and work boots must be supplied and worn by all *contractors'* employees working in the plant operating areas at all times, and in offices and other areas as the nature of the work requires. Determination of these requirements will be the responsibility of the plant Safety Managers' office.

Eye Protection:	Approved safety glasses with side shields are required in all operating areas of the plant. No contact lenses are permitted due to hazards of mists, fumes and blowing dust.
Safety Hats:	Approved hard hats must be worn in all operating areas of the plant.
Safety Boots:	Steel-toed leather shoes with a minimum of 5" height are required in all operating areas of the plant.
General Clothing Requirements:	Minimum shirt accepted is a tee shirt with sleeves. No cut-offs or shorts are allowed.

9. *RESPIRATORY PROTECTION*

The *contractor* shall provide respiratory protective equipment and maintain a respiratory protection program as required by Federal Regulation 29 CFR 1910.134 and/or recommended by Plant *Safety Department*.

All personnel must be fit tested and trained prior to being permitted to use any respirator. Personnel using a respirator must have a valid fit test record in their possession to verify that training and proper instructions have been provided. All personnel working in plant operating areas must be clean shaven where the standard respirator seal area would contact their face.

10. *CLEANING OF JOB SITE*

The *contractor* shall keep the job site clean and free from rubbish, scrap, etc., at all times during the progress of the work and shall remove rubbish as often as direct by the *Simplot* Project Supervisor.

At the close of their work, *contractors* must clean and repair any adjacent work which has been damaged or marred by the operations and leave the premises clean as far as their work is concerned. In case of dispute, *J.R. Simplot Company* may remove rubbish at *contractors'* expense. The *contractor* will be given notice prior to removal of rubbish or similar materials.

Nails must be removed or bent over on all boards and crating materials which are not immediately removed from the job site. Milk cartons, drinking bottles or cups, food scraps, cigarette butts, etc., must be cleaned up daily.

11. *SANITARY FACILITIES*

The *Simplot* Project Supervisor in charge of each project will arrange for sanitary and toilet facilities for the *contractors'* personnel to use. It is understood that only assigned facilities will be used by *contractors'* personnel.

12. *UTILITIES (Electric Light, Power, Steam Water, Telephone and Fuel)*

The *contractor* shall make no connection, either temporary or permanent, to any service line of electric power, steam, water or fuel without specific approval of the *Simplot* Project Supervisor. Specific precautions may be necessary.

Existing underground and overhead utilities, communication and fire alarm services will be located for the *contractor* by the *Simplot* Project Supervisor. *Contractors* shall protect these utilities and services from damage to prevent possible accident or loss of fire protection and communication services.

13. *VALVES AND PIPELINES*

Contractors' men shall not operate a valve, switch or open a pipeline without specific approval and in the presence of the *Simplot* Project Supervisor. Exceptions to this regulation may be made for temporary periods by the Area Manager.

14. *FIRE PROTECTION*

(a) ***Permit for Welding, Open Flames, etc.***
The *contractors'* personnel shall obtain for each shift and each location, a permit from supervision for open flames or arc cutting, burning, welding, working on live electrical wires or other apparatus producing open flames or sparks capable of acting a source of ignition. Special fabricating area or new construction would not necessarily require a permit, but arrangements of this nature must be approved by the *Simplot* Project Supervisor concerned.

(b) ***Notification of Intent***
The *contractors'* men shall obtain approval from the *Safety Department* whenever their work will entail shutting off a water main, shutting off or using water from a fire hydrant, blocking a roadway so that fire fighting equipment cannot pass, blocking access to fire equipment or hydrant and/or blocking, removing or changing any exit or fire escape.

(c) ***Fire Extinguishers***
It shall be the responsibility of the *contractors* to maintain in temporary offices, tool rooms or storage rooms assigned to him, a fire extinguisher for placement in the immediate vicinity of each job involving welding, burning, open flame, etc. *Contractors'* employees must not remove J.R. *Simplot* Companies' fire extinguishers from their designated stations except under emergency conditions.

(d) *Fire Watchers*

Contractors' employees may be assigned as fire watchers as required by the work in progress. Fire watchers must carefully follow instructions set forth by plant supervision, be fully indoctrinated in the proper use and limitations of fire extinguishers, and know how to turn in a fire alarm. If the *contractor* fails to provide satisfactory and adequate fire watchers, the company reserves the right to provide the same at the *contractors'* expense.

(e) *Painting*

No painting shall be started in a new area without obtaining permission of the *Simplot* Project Supervisor.

(f) *Flammable Liquids*

All flammable liquids used by *contractors* in the plant shall be stored in safety cans or in factory sealed containers in an area designated by the *Safety Department* and/or Area Supervisor. Containers for bulk storage of flammable liquids must be clearly marked and approved by the *Safety Department*. The *Simplot* Project Supervisor must be notified before these containers are opened.

(g) *Flammable Materials*

Notify the *Simplot* Project Supervisor immediately if flammable materials or rubbish is stored or accumulated in the area so as to constitute a fire hazard.

15. *PROTECTION OF WORK*

(a) *Barriers*

The *contractor* shall erect and maintain temporary barriers or rails and electric warning lights around ditches, stair and elevator wells and other shafts or openings. No flame-type lighting is to be used.

Contractors shall make sure that all personnel under their control area are aware of plant hazard warning signs and barriers and insure that appropriate restrictions are observed.

(b) *Scaffolding*

The *contractor* shall furnish all tools, equipment, scaffolding, staging, ladders, flooring, runways and other temporary construction required for the safe execution of this work in the project. All scaffolding, runways and other temporary constructions shall be rigidly built so as to support safely (4) four times the weight of all materials, apparatus, equipment and men to be placed thereon or as required by construction regulations. All ladders and scaffold boards must be tied off or otherwise secured.

Fall protection for employees is required as outline in appropriate OSHA standards.

(c) *Excavations*

The *contractor* shall furnish all shoring, sheathing, bracing, etc., that excavations may require for the safety of personnel and to comply with regulations. Excavated material shall be place or piled where designated by plant supervision so as not to block access to process equipment, building, roads, fire and safety equipment, etc.

(d) *Roadways, Walkways and Railroad Sidings*

All roadways, walkways and railroad sidings must be maintained by the *contractor* in a safe, passable condition during the progress of the job.

In the event that a track blockage must occur for the work to be completed, a track blockage permit must be obtained from the *Simplot* Project Supervisor.

(e) *Tripping Hazards*

The *contractor* must not permit any tripping hazards to be placed in passageways, isles, stairways, railroad sidings, etc.

(f) *Loading Structures*

The *contractor* shall not load, nor permit to be loaded, any part of permanent or temporary structures with a weight that will endanger its safety.

(g) *Entering Enclosed Spaces*

Permits for entering enclosed spaces (including vessels, bins, duct work, tanks, cooling towers, etc.) are necessary and should be obtained through the designated personnel (normally the *Simplot* Project Supervisor). Each enclosed space will be inspected immediately prior to entering, all potential hazards identified and then a permit issued to *contractors* outlining the safety requirements for work to be done. These safety requirements must be complied with before work begins.

Contractors' employees may be signed as safety watches. Certain enclosed space entries may require one or two safety watch personnel to be on duty at all times that work is in progress.

Certain enclosed space entries may require rescue kits to be available. Depending on the type of entry this may consist of extrication equipment or may include SCBA equipment. *Contractors* should supply their own rescue kits unless other arrangements are made with the *Simplot* Project Supervisor.

(h) *Opening Lines or Connected Equipment*

Permits for opening lines or connected equipment shall be obtained by the *contractor*'s workers for each shift and for each location.

In order to protect personnel and property from the physical and chemical hazards that may be associated with the activity, it is necessary that a knowledgeable person (normally the *Simplot* Project Supervisor) outline the steps to be taken to assure the safe completion of the job on the safety permit. These steps must be complied with before work can begin.

16. *CONTRACTORS' EQUIPMENT - GENERAL*

All *contractors'* equipment must be used and stores in the plant in a safe manner.

(a) ***Ladders, tools, equipment, etc.,***
Ladders, tools, equipment, etc., used by the *contractor* must be maintained in a condition that will not constitute a hazard to the *contractors'* employees or plant personnel.

(b) ***Compressed Gas Cylinders***
Compressed gas cylinders in use must be tied securely in an upright position. Cylinders in storage must be securely tied if standing up. Cylinders shall not be hoisted to upper floors of structures or moved from one location to another without the use of a cylinder carrier. Full and empty cylinders must not be left without the safety caps in place.

(c) ***Chains, Ropes and Hoisting Equipment***
The *contractor* shall be responsible to assure that all chains, ropes and hoisting equipment are safe to use.

(d) ***Cranes and Hoisting Equipment***
Cranes may not be put in position, relocated or removed from the plant without prior approval of plant supervision. This is to protect underground and low clearance overhead lines and process equipment. All persons must keep clear from walking or passing under the boom and the loads being transported by a crane or any hoisting device.

17. *REPORTING FIRES, ACCIDENTS OR OTHER EMERGENCIES*

Dial 5555 on the plant phones to report a fire. Give exact locations, names and conditions.

Dial 5555 if the ambulance and first aid assistance are required.

All accidents and injuries must be reported to the *J.R. Simplot Company Safety Department.*

ADDITIONAL CONTRACTOR RULES

I. *TRACK BLOCKAGE BARRICADES/FLAGS*

All *contractor* and *Simplot* Maintenance personnel are required to have their own approved flagging in place when blocking a track under a track blockage permit and are responsible for removing their flag and notifying the Switch Crew when work is completed.

(a) All *contractors* will be required to provide their own approved flags.

(b) *Simplot* employees may use the on site flags, but will be required to have a flag for each permit.

II. *ISSUING PARTS TO CONTRACTORS*

We will issue water to *contractors* using the employee number of the *Simplot* Project Supervisor. No repair parts or operating supplies will be issued to *contractors* unless they are accompanied by a *Simplot* Project Supervisor, or the have written authorization from the Supervisor. The work order number must be on the written authorization.

We will check out rubber safety clothing to *contractors* if requested by our Engineers, Planners or Supervisors.

III. *TRANSPORTING PERSONNEL IN OPEN TRUCK BEDS*

Please be advised that all pickup trucks used to transport personnel, must be equipped with a railing along each side. All personnel must be seated and legs may not extend over the tail gate. The driver must be especially alert to other traffic, stop signs and rail crossings. A *maximum* speed limit of **15 mph** must be strictly observed.

For further information *contractors* should refer to 29 CFR part 1910 "Occupant Protection in Motor Vehicles" relative to transporting personnel in open bed trucks.

IV. *MOBILE EQUIPMENT REQUIRING BACKUP ALARMS*

All "working equipment" vehicles that operate within the plant must have a backup alarm. This policy apples to equipment owned or rented by *contractors*.

"Working Equipment" vehicles are defined as those that perform a function that occupies the attention of the operator, such that full attention is not given to reverse motion such as loads, levels, dumps, lifts, etc. A backup alarm is also required when the operators' view is obstructed in the reverse direction.

Typical equipment that would require a backup alarm includes, but not limited to:

Loaders, dozers, cranes, forklifts, manlifts, large trucks, graders, backhoes.

It is not intended that cars or pickup trucks will need a backup alarm.

EXHIBIT "B"

J. R. SIMPLOT COMPANY
DON PLANT
MANAGEMENT DIRECTIVES

Directive: R-4

Issue Date: March 14, 1994

Approved: /s/ Dean F. Cowley

SUBJECT: CONTRACTOR SERVICES

1. PURPOSE:

1.01 To ensure that contractors perform their work safely and that they are properly indoctrinated and trained to comply with safety and environmental regulatory requirements.

2. POLICY STATEMENT:

2.01 To the extent reasonably possible, contractors will be provided a work environment free of hazards that may cause illness or physical harm. The Company will strictly enforce contractor compliance with Federal, State, plant safety (OSHA), and environmental regulations.

2.02 Contracts will be written to state that excess materials brought into the Don Plant by a contractor must be removed from the plant at the conclusion of the job/project.

2.03 Contractors are prohibited from disposing of solid wastes in plant bins or Snake River Sanitation roll-off bins unless this practice has been approved in their contract and prior arrangements have been made with the Environmental Support Manager or designee. If this practice has not been approved in their contract, contractors are required to remove all solid wastes, as they are generated, on a daily basis.

2.04 Contractors are required to practice proper management of hazardous materials which they bring on plant including proper storage of the items. Contractors are expected to use non-hazardous substitutions whenever practical/possible for any materials brought on-site.

2.05 Contractors are required to practice good housekeeping in their areas.

2.06 This directive will be read by the contractor and will be incorporated by reference into each contract.

3. RESPONSIBILITIES:

3.01 The Safety Department is responsible for the indoctrination of con- tractors in the areas of plant regulations and processes, safe work practices and OSHA compliance.

3.02 Environmental Support is responsible for the indoctrination of con-tractors in compliance with local, State and Federal environmental regulations and to inspect contractor areas to ensure compliance with this directive.

3.03 Project supervisors are responsible to coordinate with the Safety Department and Environmental Support to assure that contractors receive indoctrination (when feasible, this will occur at least one week prior to beginning work). When Safety Department and Environ- mental Support personnel are not available, indoctrination will be performed by trained project supervisors using appropriate documents. The project supervisor must also instruct the contractor with respect to potentially hazardous working conditions that may exist at any new work site within the plant.

3.04 Contractors regularly working within the plant will be required to attend annual safety and environmental indoctrinations in January of each year. However, all such contractors must have attended a plant safety and environmental indoctrination within the past six (6) months.

4. CONTRACTOR OBLIGATIONS:

4.01 The contractor will furnish the Safety Department with a copy of the following information as it applies to the job:

A. A copy of their safety program.

B. Certification and training records for heavy equipment, such as, but not limited to, cranes, forklifts, backhoes, manlifts and front-end loaders.

C. A copy of their hazardous chemical communication program.

D. Material Safety Data Sheets (MSDS) for any chemical or product intended to be brought into the plant for use on the job. Training records of employees in the use and understanding of MSDS.

E. Hazardous material handling program. Planned spill control and cleanup procedures and training records of those who will handle/respond to spills of hazardous materials.

F. Copy of current (annual) respirator fit test records.

G. Names of employees with first aid training and emergency medical assistance training, such as C.P.R..

H. Written proof of insurance with coverage in amounts specified by the J. R. Simplot Company for the contract.

4.02 The contractor will additionally comply with the environmental procedures outlined in this directive.

5. INSPECTIONS:

5.01 Routine safety inspections of contractor sites will be done by the Project Supervisor and the Safety Department. Violations of plant safety rules, OSHA regulations, or any unsafe work practices will be noted and recorded. The contractor will be notified of any safety violations that require correction. The safe work performance of contractors will be utilized in determining whether or not a contractor is awarded future work.

5.02 Routine environmental compliance inspections of contractor areas and work sites will be done by the Project Supervisor and Environmental Support. Violations of plant environmental rules and local, State and/or Federal regulations will be noted and recorded. The con- tractor will be notified of any compliance violations that require correction. The compliance performance of contractors will be utilized in determining whether or not a contractor is awarded future work.

6. SAFETY AND ENVIRONMENTAL PROCEDURES FOR CONTRACTOR:

6.01 When a contract for services is issued, a copy of the plant safety regulations for contractors is also to be issued and reviewed by the contractor prior to the safety indoctrination meeting.

6.02 When a contract for services is issued, a copy of this directive and a copy of the plant environmental regulations for contractors will be issued and reviewed by the contractor prior to the environmental indoctrination meeting.

7. MEDICAL SERVICES:

7.01 Contractors will be charged a reasonable amount to cover actual costs incurred resulting from their employees being provided medical assistance or transportation to a local hospital. Transportation will be billed at $125.00 per trip. Charges for medical supplies and/or services of Simplot EMTs or nurse will be as determined by the Medical Department.

8. PROJECT SUPERVISOR SAFETY AND ENVIRONMENTAL RESPONSIBILITIES:

8.01 The project supervisor will be familiar with plant safety procedures and enforce them when violations are observed. Particular attention will be given to the following:

A. Entering enclosed spaces.

B. Scaffolding and work platforms.

C. Lock out/tag out.

D. Ladders.

E. Barricading.

F. Trenching and shoring.

G. Respiratory protection.

H. Track blockage.

8.02 Any difficulty in enforcing safety regulations with the contractor should be reported to the Safety Department. Corrective action will be taken with contractors violating safety policies/procedures up to and including termination of the contract(s).

8.03 The project supervisor will be familiar with plant environmental procedures and will require compliance with the procedures at all times.

8.04 The storage locations for waste material or potentially hazardous material must be established and identified for the contractor. Use of these areas by contractors is mandatory.

8.05 Any difficulty in enforcing environmental regulations with the con- tractor should be reported to Environmental Support. Corrective action will be taken with contractors violating environmental policies/procedures up to and including termination of the contract(s).

9. DEFINITIONS:

9.01 The use of the term "contractor(s)" means primary contractor, their sub-contractors, and any and all of their employees who work at the plant.

9.02 Indoctrination means indoctrination and training.

APPENDIX D

APPENDIX D

DAILY SAFETY MEETING ATENDANCE FORM

DAILY SAFETY MEETING ATTENDANCE FORM

MFG, Inc.

Project Name: _____ Date: _____ Time: _____

Project Number: _____ Presented by: _____

Signature: _____

Check the Topics/Information Reviewed:

- ☐ safety glasses, hard hat, safety boots
- ☐ site safety plan review and location
- ☐ equipment and machinery familiarization
- ☐ employee Right-To-Know/MSDS location
- ☐ open pits, excavations, and site hazards
- ☐ vehicle safety and driving/road conditions
- ☐ portable tool safety and awareness
- ☐ overhead utility locations and clearance
- ☐ first aid, safety, and PPE location
- ☐ sharp object, rebar, and scrap metal hazards
- ☐ safety is everyone's responsibility
- ☐ inner gloves/outer gloves
- ☐ excavation/trenching inspections/documentation
- ☐ full face respirators with proper cartridges
- ☐ location and operation of kill switch
- ☐ slips, trips, and falls
- ☐ directions to hospital/first aid
- ☐ anticipated visitors
- ☐ electrical ground fault
- ☐ public safety and fences
- ☐ excavator swing and loading
- ☐ orderly site and housekeeping
- ☐ smoking in designated areas
- ☐ leather gloves for protection
- ☐ effects of the night before
- ☐ vibration related injuries
- ☐ fire extinguisher locations
- ☐ eye wash station locations
- ☐ decontamination procedures
- ☐ daily work scope
- ☐ emergency protocol
- ☐ parking and lay down
- ☐ hot work permits
- ☐ strains and sprains
- ☐ noise hazards
- ☐ no horseplay
- ☐ heat and cold stress
- ☐ backing up hazards
- ☐ accidents are costly
- ☐ dust and vapor control
- ☐ refueling procedures
- ☐ confined space entry
- ☐ Safety is No Accident

☐ upgrade to level C at: PID (___ eV) >___ ppm

☐ work stoppage at: PID (___ eV) >___ ppm, % LEL > 10%

Discussion/Comments/Follow-up Actions: _____

NAME	SIGNATURE	COMPANY

Instructions:

- Conduct a daily safety meeting prior to beginning each day's site activities.
- Complete form, obtain signatures, and file with the Daily Summary.
- Follow-up on any noted items and document resolution of any action items.

APPENDIX E

APPENDIX E

MATERIAL SAFETY DATA SHEETS

Arsenic 29 CFR 1910.1018

CANCER-SUSPECT AGENT AREA
AUTHORIZED PERSONNEL ONLY

(2) Areas containing hazardous operations or where an emergency currently exists shall be posted with legible signs bearing the legend:

CANCER-SUSPECT AGENT IN THIS AREA
PROTECTIVE EQUIPMENT REQUIRED AUTHORIZED PERSONNEL ONLY

(3) Containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride shall be legibly labeled:

CONTAMINATED WITH VINYL CHLORIDE

CANCER-SUSPECT AGENT

(4) Containers of polyvinyl chloride shall be legibly labeled:

POLYVINYL CHLORIDE (OR TRADE NAME)

Contains

VINYL CHLORIDE

VINYL CHLORIDE IS A CANCER-SUSPECT AGENT

(5) Containers of vinyl chloride shall be legibly labeled either:

(i)

VINYL CHLORIDE

EXTREMELY FLAMMABLE GAS UNDER PRESSURE

CANCER SUSPECT AGENT

or (ii) In accordance with 49 CFR Parts 170 through 189, with the additional legend:

CANCER-SUSPECT AGENT

applied near the label or placard.

(6) No statement shall appear on or near any required sign, label or instruction which contradicts or detracts from the effect of, any required warning, information or instruction.

(m) *Records.* (1) All records maintained in accordance with this section shall include the name and social security number of each employee where relevant.

(2) Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives and the Assistant Secretary in accordance with 29 CFR 1910.20 (a) through (e) and (g) through (i). These records shall be provided upon request to the Director. Authorized personnel rosters shall also be provided upon request to the Assistant Secretary and the Director.

(i) Monitoring and measuring records shall:

(A) State the date of such monitoring and measuring and the concentrations determined and identify the instruments and methods used;

(B) Include any additional information necessary to determine individual employee exposures where such exposures are determined by means other than individual monitoring of employees; and

(C) Be maintained for not less than 30 years.

(ii) [Reserved]

(iii) Medical records shall be maintained for the duration of the employment of each employee plus 20 years or 30 years, whichever is longer.

(3) In the event that the employer ceases to do business and there is no successor to receive and retain the records for the prescribed period, these records shall be transmitted by registered mail to the Director, and each employee individually notified in writing of this transfer. The employer shall also comply with any additional requirements set forth in 29 CFR 1910.20(h).

(n) *Reports.* (1) Not later than 1 month after the establishment of a regulated area, the following information shall be reported to the OSHA Area Director. Any changes to such information shall be reported within 15 days:

(i) The address and location of each establishment which has one or more regulated areas; and

(ii) The number of employees in each regulated area during normal operations, including maintenance.

(2) Emergencies, and the facts obtainable at that time, shall be reported within 24 hours to the OSHA Area Director. Upon request of the Area Director, the employer shall submit additional information in writing relevant to the nature and extent of employee exposures and measures taken to prevent future emergencies of similar nature.

(3) Within 10 working days following any monitoring and measuring which discloses that any employee has been exposed, without regard to the use of respirators, in excess of the permissible exposure limit, each such employee shall be notified in writing of the results of the exposure measurement and the steps being taken to reduce the exposure to within the permissible exposure limit.

(o) *Effective dates.* (1) Until April 1, 1976, the provisions currently set forth in §1910.93q of this part shall apply.

(2) Effective April 1, 1975, the provisions set forth in §1910.93q of this part shall apply.

APPENDIX A TO §1910.1017—
SUPPLEMENTARY MEDICAL INFORMATION

When required tests under paragraph (k)(1) of this section show abnormalities, the tests should be repeated as soon as practicable, preferably within 3 to 4 weeks. If tests remain abnormal, consideration should be given to withdrawal of the employee from contact with vinyl chloride, while a more comprehensive examination is made.

Additional tests which may be useful:

(A) For kidney dysfunction: urine examination for albumin, red blood cells, and exfoliative abnormal cells.

(B) Pulmonary system: Forced vital capacity, forced expiratory volume at 1 second, roentgenogram (posterior-anterior, 14 x 17 inches).

(C) Additional serum tests: Lactic acid dehydrogenase, lactic acid dehydrogenase isoenzyme, protein determination, and protein electrophoresis.

(D) For a more comprehensive examination of repeated abnormal serum tests: Hepatitis profile, and liver scanning.

[39 FR 35896, Oct. 4, 1974; 39 FR 41848, Dec. 3, 1974, as amended at 40 FR 13211, Mar. 25, 1975. Redesignated at 40 FR 23072, May 28, 1975 and amended at 43 FR 49751, Oct. 24, 1978; 45 FR 35212, May 23, 1980; 54 FR 24334, June 7, 1989; 58 FR 35310, June 30, 1993; 61 FR 5508, Feb. 13, 1996; 63 FR 1286, Jan. 8, 1998]

1910.1018 Inorganic arsenic.

(a) *Scope and application.* This section applies to all occupational exposures to inorganic arsenic except that this section does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

(b) *Definitions. Action level* means a concentration of inorganic arsenic of 5 micrograms per cubic meter of air (5 $\mu g/m^3$) averaged over any eight (8) hour period.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under paragraph (e) of this section.

Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Inorganic arsenic means copper acetoarsenite and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

(c) *Permissible exposure limit.* The employer shall assure that no employee is exposed to inorganic arsenic at concentrations greater than 10 micrograms per cubic meter of air (10 $\mu g/m^3$), averaged over any 8-hour period.

(d) *Notification of use.* (1) By October 1, 1978 or within 60 days after the introduction of inorganic arsenic into the workplace, every employer who is required to establish a regulated area in his workplaces shall report in writing to the OSHA area office for each such workplace:

(i) The address of each such workplace;

(ii) The approximate number of employees who will be working in regulated areas; and

(iii) A brief summary of the operations creating the exposure and the actions which the employer intends to take to reduce exposures.

(2) Whenever there has been a significant change in the information required by paragraph (d)(1) of this section the employer shall report the changes in writing within 60 days to the OSHA area office.

(e) *Exposure monitoring*—(1) *General.* (i) Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to inorganic arsenic over an eight (8) hour period.

(ii) For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(iii) The employer shall collect full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.

(2) *Initial monitoring.* Each employer who has a workplace or work operation covered by this standard shall monitor each such workplace and work operation to accurately determine the airborne concentration of inorganic arsenic to which employees may be exposed.

(3) *Frequency.* (i) If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as otherwise provided in paragraph (e)(4) of this section.

(ii) If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the permissible exposure limit, the employer shall repeat monitoring at least quarterly.

(iii) If the initial monitoring, required by this section, or subsequent monitoring reveals employee exposure to be above the action level and below the permissible exposure limit the employer shall repeat monitoring at least every six months.

(iv) The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven (7) days apart, are below the action level at which time the employer may discontinue monitoring for that employee until such time as any of the events in paragraph (e)(4) of this section occur.

(4) *Additional monitoring.* Whenever there has been a production, process, control or personal change which may result in new or additional exposure to inorganic arsenic, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to inorganic arsenic, additional monitoring which complies with paragraph (e) of this section shall be conducted.

(5) *Employee notification.* (i) Within five (5) working days after the receipt of monitoring results, the employer shall notify each employee in writing of the results which represent that employee's exposures.

(ii) Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

(6) *Accuracy of measurement.* (i) The employer shall use a method of monitoring and measurement which has an accuracy (with a confidence level of 95 percent) of not less than plus or minus 25 percent for concentrations of inorganic arsenic greater than or equal to 10 $\mu g/m^3$.

(ii) The employer shall use a method of monitoring and measurement which has an accuracy (with confidence level of 95 percent) of not less than plus or minus 35 percent for concentrations of inorganic arsenic greater than 5 $\mu g/m^3$but less than 10 $\mu g/m^3$.

(f) *Regulated area*—(1) *Establishment.* The employer shall establish regulated areas where worker exposures to inorganic arsenic, without regard to the use of respirators, are in excess of the permissible limit.

(2) *Demarcation.* Regulated areas shall be demarcated and segregated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to inorganic arsenic.

(3) *Access.* Access to regulated areas shall be limited to authorized persons or to persons otherwise authorized by the Act or regulations issued pursuant thereto to enter such areas.

(4) *Provision of respirators.* All persons entering a regulated area shall be supplied with a respirator, selected in accordance with paragraph (h)(2) of this section.

(5) *Prohibited activities.* The employer shall assure that in regulated areas, food or beverages are not consumed, smoking products, chewing tobacco and gum are not used and cosmetics are not applied, except that these activities may be conducted in the anchrooms, change rooms and showers required under paragraph (m) of this section. Drinking water may be consumed in the regulated area.

(g) *Methods of compliance*—(1) *Controls.* (i) The employer shall institute at the earliest possible time but not later than December 31, 1979, engineering and work practice controls to reduce exposures to or below the permissible exposure limit, except to the extent that the employer can establish that such controls are not feasible.

(ii) Where engineering and work practice controls are not sufficient to reduce exposures to or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest levels achievable by these controls and shall be supplemented by the use of respirators in accordance with paragraph (h) of this section and other necessary personal protective equipment. Employee rotation is not required as a control strategy before respiratory protection is instituted.

(2) *Compliance Program.* (i) The employer shall establish and implement a written program to reduce exposures to or below the permissible exposure limit by means of engineering and work practice controls.

(ii) Written plans for these compliance programs shall include at least the following:

(A) A description of each operation in which inorganic arsenic is emitted; e.g. machinery used, material processed, controls in place, crew size, operating procedures and maintenance practices;

(B) Engineering plans and studies used to determine methods selected for controlling exposure to inorganic arsenic;

(C) A report of the technology considered in meeting the permissible exposure limit;

(D) Monitoring data;

(E) A detailed schedule for implementation of the engineering controls and work practices that cannot be implemented immediately and for the adaption and implementation of any additional engineering and work practices necessary to meet the permissible exposure limit;

(F) Whenever the employer will not achieve the permissible exposure limit with engineering controls and work practices by December 31, 1979, the employer shall include in the compliance plan an analysis of the effectiveness of the various controls, shall install engineering controls and institute work practices on the quickest schedule feasible, and shall include in the compliance plan and implement a program to minimize the discomfort and maximize the effectiveness of respirator use; and

(G) Other relevant information.

(iii) Written plans for such a program shall be submitted upon request to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary, Director, any affected employee or authorized employee representatives.

(iv) The plans required by this paragraph shall be revised and updated at least every 6 months to reflect the current status of the program.

(h) *Respiratory protection*—(1) *General.* For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this paragraph. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering or work-practice controls.

(ii) Work operations, such as maintenance and repair activities, for which the employer establishes that engineering and work-practice controls are not feasible.

(iii) Work operations for which engineering and work-practice controls are not yet sufficient to reduce employee exposures to or below the permissible exposure limit.

(iv) Emergencies.

(2) *Respirator program.* (i) The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m).

(ii) If an employee exhibits breathing difficulty during fit testing or respirator use, they must be examined by a physician trained in pulmonary medicine to determine whether they can use

a respirator while performing the required duty.

(3) *Respirator selection.* (i) The employer must use Table I of this section to select the appropriate respirator or combination of respirators for inorganic arsenic compounds without significant vapor pressure, and Table II of this section to select the appropriate respirator or combination of respirators for inorganic arsenic compounds that have significant vapor pressure.

(ii) When employee exposures exceed the permissible exposure limit for inorganic arsenic and also exceed the relevant limit for other gases (for example, sulfur dioxide), an air-purifying respirator provided to the employee as specified by this section must have a combination high-efficiency filter with an appropriate gas sorbent. (See footnote in Table 1 of this section.)

(iii) Employees required to use respirators may choose, and the employer must provide, a powered air-purifying respirator if it will provide proper protection. In addition, the employer must provide a combination dust and acid-gas respirator to employees who are exposed to gases over the relevant exposure limits.

TABLE I—RESPIRATORY PROTECTION FOR INORGANIC ARSENIC PARTICULATE EXCEPT FOR THOSE WITH SIGNIFICANT VAPOR PRESSURE

Concentration of inorganic arsenic (as As) or condition of use	Required respirator
(i) Unknown or greater or lesser than 20,000 µg/m(3) (20 mg/m(3)) or firefighting.	(A) Any full facepiece self-contained breathing apparatus operated in positive pressure mode.
(ii) Not greater than 20,000 µg/m(3) (20 mg/m(3)).	(A) Supplied air respirator with full facepiece, hood, or helmet or suit and operated in positive pressure mode.
(iii) Not greater than 10,000 µg/m(3) (10 mg/m(3)).	(A) Powered air-purifying respirators in all inlet face coverings with high efficiency filters [1]. (B) Half-mask supplied air respirators operated in positive pressure mode.
(iv) Not greater than 500 µg/m(3)	(A) Full facepiece air-purifying respirator equipped with high-efficiency filter [1]. (B) Any full facepiece supplied air respirator. (C) Any full facepiece self-contained breathing apparatus.
(v) Not greater than 100 µg/m(3)	(A) Half-mask air-purifying respirator equipped with high-efficiency filter [1]. (B) Any half-mask supplied air respirator.

[1] High-efficiency filter-99.97 pct efficiency against 0.3 micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

TABLE II—RESPIRATORY PROTECTION FOR INORGANIC ARSENICALS (SUCH AS ARSENIC TRICHLORIDE [2] AND ARSENIC PHOSPHIDE) WITH SIGNIFICANT VAPOR PRESSURE

Concentration of inorganic arsenic (as As) or condition of use	Required respirator
(i) Unknown or greater or lesser than 20,000 µg/m(3) (20 mg/m(3)) or firefighting.	(A) Any full facepiece self-contained breathing apparatus operated in positive pressure mode.
(ii) Not greater than 20,000 µg/m(3) (20 mg/m(3)).	(A) Supplied air respirator with full facepiece, hood, or helmet or suit and operated in positive pressure mode.
(iii) Not greater than 10,000 µg/m(3) (10 mg/m(3)).	(A) Half-mask [2] supplied air respirator operated in positive pressure mode.
(iv) Not greater than 500 µg/m(3)	(A) Front or back mounted gas mask equipped with high-efficiency filter [1] and acid gas canister. (B) Any full facepiece supplied air respirator. (C) Any full facepiece self-contained breathing apparatus.
(v) Not greater than 100 µg/m(3)	(A) Half-mask air-purifying respirator equipped with high efficiency filter [1] and acid gas cartridge. (B) Any half-mask supplied air respirator.

[1] High-efficiency filter-99.97 pct efficiency against 0.3 micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.
[2] Half-mask respirators shall not be used for protection against arsenic trichloride, as it is rapidly absorbed through the skin.

(i) [Reserved]

(j) *Protective work clothing and equipment*—(1) *Provision and use.* Where the possibility of skin or eye irritation from inorganic arsenic exists, and for all workers working in regulated areas, the employer shall provide at no cost to the employee and assure that employees use appropriate and clean protective work clothing and equipment such as, but not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, and shoes or coverlets;

(iii) Face shields or vented goggles when necessary to prevent eye irritation, which comply with the requirements of § 1910.133(a) (2)–(6); and

(iv) Impervious clothing for employees subject to exposure to arsenic trichloride.

(2) *Cleaning and replacement.* (i) The employer shall provide the protective clothing required in paragraph (j) (1) of this section in a freshly laundered and dry condition at least weekly, and daily if the employee works in areas where exposures are over 100 µg/m^3 of inorganic arsenic or in areas where more frequent washing is needed to prevent skin irritation.

(ii) The employer shall clean, launder, or dispose of protective clothing required by paragraph (j) (1) of this section.

(iii) The employer shall repair or replace the protective clothing and equipment as needed to maintain their effectiveness.

(iv) The employer shall assure that all protective clothing is removed at the completion of a work shift only in change rooms prescribed in paragraph (m) (1) of this section.

(v) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of inorganic arsenic outside the container.

(vi) The employer shall inform in writing any person who cleans or launders clothing required by this section, of the potentially harmful effects including the carcinogenic effects of exposure to inorganic arsenic.

(vii) The employer shall assure that the containers of contaminated protective clothing and equipment in the workplace or which are to be removed from the workplace are labelled as follows:

CAUTION: Clothing contaminated with inorganic arsenic; do not remove dust by blowing or shaking. Dispose of inorganic arsenic contaminated wash water in accordance with applicable local, State or Federal regulations.

(viii) The employer shall prohibit the removal of inorganic arsenic from protective clothing or equipment by blowing or shaking.

(k) *Housekeeping*—(1) *Surfaces.* All surfaces shall be maintained as free as practicable of accumulations of inorganic arsenic.

(2) *Cleaning floors.* Floors and other accessible surfaces contaminated with inorganic arsenic may not be cleaned by the use of compressed air, and shoveling and brushing may be used only where vacuuming or other relevant methods have been tried and found not to be effective.

(3) *Vacuuming.* Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner to minimize the reentry of inorganic arsenic into the workplace.

(4) *Housekeeping plan.* A written housekeeping and maintenance plan shall be kept which shall list appropriate frequencies for carrying out housekeeping operations, and for cleaning and maintaining dust collection equipment. The plan shall be available for inspection by the Assistant Secretary.

(5) *Maintenance of equipment.* Periodic cleaning of dust collection and ventilation equipment and checks of their effectiveness shall be carried out to maintain the effectiveness of the system and a notation kept of the last check of effectiveness and cleaning or maintenance.

(l) [Reserved]

(m) *Hygiene facilities and practices*—(1) *Change rooms.* The employer shall provide for employees working in regulated areas or subject to the possibility of skin or eye irritation from inorganic arsenic, clean change rooms equipped with storage facilities for street clothes and separate storage facilities for protective clothing and equipment in accordance with 29 CFR 1910.141(e).

(2) *Showers.* (i) The employer shall assure that employees working in regulated areas or subject to the possibility of skin or eye irritation from inorganic arsenic shower at the end of the work shift.

(ii) The employer shall provide shower facilities in accordance with § 1910.141(d)(3).

(3) *Lunchrooms.* (i) The employer shall provide for employees working in regulated areas, lunchroom facilities which have a temperature controlled, positive pressure, filtered air supply, and which are readily accessible to employees working in regulated areas.

(ii) The employer shall assure that employees working in the regulated area or subject to the possibility of skin or eye irritation from exposure to inorganic arsenic wash their hands and face prior to eating.

(4) *Lavatories.* The employer shall provide lavatory facilities which comply with § 1910.141(d) (1) and (2).

(5) *Vacuuming clothes.* The employer shall provide facilities for employees working in areas where exposure, without regard to the use of respirators, exceeds 100 $\mu g/m^3$ to vacuum their protective clothing and clean or change shoes worn in such areas before entering change rooms, lunchrooms or shower rooms required by paragraph (j) of this section and shall assure that such employees use such facilities.

(6) *Avoidance of skin irritation.* The employer shall assure that no employee is exposed to skin or eye contact with arsenic trichloride, or to skin or eye contact with liquid or particulate inorganic arsenic which is likely to cause skin or eye irritation.

(n) *Medical surveillance*—(1) *General*—(i) *Employees covered.* The employer shall institute a medical surveillance program for the following employees:

(A) All employees who are or will be exposed above the action level, without regard to the use of respirators, at least 30 days per year; and

(B) All employees who have been exposed above the action level, without regard to respirator use, for 30 days or more per year for a total of 10 years or more of combined employment with the employer or predecessor employers prior to or after the effective date of this standard. The determination of exposures prior to the effective date of this standard shall be based upon prior exposure records, comparison with the first measurements taken after the effective date of this standard, or comparison with records of exposures in areas with similar processes, extent of engineering controls utilized and materials used by that employer.

(ii) *Examination by physician.* The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee without loss of pay and at a reasonable time and place.

(2) *Initial examinations.* By December 1, 1978, for employees initially covered by the medical provisions of this section, or thereafter at the time of initial assignment to an area where the employee is likely to be exposed over the action level at least 30 days per year, the employer shall provide each affected employee an opportunity for a medical examination, including at least the following elements:

(i) A work history and a medical history which shall include a smoking history and the presence and degree of respiratory symptoms such as breathlessness, cough, sputum production and wheezing.

(ii) A medical examination which shall include at least the following:

(A) A 14″ by 17″ posterior-anterior chest X-ray and International Labor Office UICC/Cincinnati (ILO U/C) rating;

(B) A nasal and skin examination and

(C) Other examinations which the physician believes appropriate because of the employees exposure to inorganic arsenic or because of required respirator use.

(3) *Periodic examinations.* (i) The employer shall provide the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii) at least annually for covered employees who are under 45 years of age with fewer than 10 years of exposure over the action level without regard to respirator use.

(ii) The employer shall provide the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii)(B) and (C) of this section at least semiannually, and the x-ray requirement specified in paragraph (n)(2)(ii)(A) of this section at least annually, for other covered employees.

(iii) Whenever a covered employee has not taken the examinations specified in paragraphs (n)(2)(i) and (n)(2)(ii) of this section within six (6) months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.

(4) *Additional examinations.* If the employee for any reason develops signs or symptoms commonly associated with exposure to inorganic arsenic the employer shall provide an appropriate examination and emergency medical treatment.

(5) *Information provided to the physician.* The employer shall provide the following information to the examining physician:

(i) A copy of this standard and its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's representative exposure level or anticipated exposure level;

(iv) A description of any personal protective equipment used or to be used; and

(v) Information from previous medical examinations of the affected employee which is not readily available to the examining physician.

(6) *Physician's written opinion.* (i) The employer shall obtain a written opinion from the examining physician which shall include:

(A) The results of the medical examination and tests performed;

(B) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to inorganic arsenic;

(C) Any recommended limitations upon the employee's exposure to inorganic arsenic or upon the use of protective clothing or equipment such as respirators; and

(D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further explanation or treatment.

(ii) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure.

(iii) The employer shall provide a copy of the written opinion to the affected employee.

(o) *Employee information and training*—(1) *Training program.* (i) The employer shall institute a training program for all employees who are subject to exposure to inorganic arsenic above the action level without regard to respirator use, or for whom there is the possibility of skin or eye irritation from inorganic arsenic. The employer shall assure that those employees participate in the training program.

(ii) The training program shall be provided by October 1, 1978, for employees covered by this provision, at the time of initial assignment for those subsequently covered by this provision, and at least annually for other covered employees thereafter; and the employer shall assure that each employee is informed of the following:

(A) The information contained in Appendix A;

(B) The quantity, location, manner of use, storage, sources of exposure, and the specific nature of operations which could result in exposure to inorganic arsenic as well as any necessary protective steps;

(C) The purpose, proper use, and limitation of respirators;

(D) The purpose and a description of the medical surveillance program as required by paragraph (n) of this section;

(E) The engineering controls and work practices associated with the employee's job assignment; and

(F) A review of this standard.

(2) *Access to training materials.* (i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide; upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

(p) *Signs and labels*—(1) *General.* (i) The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs and labels required by this paragraph.

(ii) The employer shall assure that no statement appears on or near any sign or label required by this paragraph which contradicts or detracts from the meaning of the required sign or label.

(2) *Signs.* (i) The employer shall post signs demarcating regulated areas bearing the legend;

DANGER

INORGANIC ARSENIC

CANCER HAZARD

AUTHORIZED PERSONNEL ONLY

NO SMOKING OR EATING

RESPIRATOR REQUIRED

(ii) The employer shall assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

(3) *Labels.* The employer shall apply precautionary labels to all shipping and storage containers of inorganic arsenic, and to all products containing inorganic arsenic except when the inorganic arsenic in the product is bound in such a manner so as to make unlikely the possibility of airborne exposure to inorganic arsenic. (Possible examples of products not requiring labels are semiconductors, light emitting diodes and glass). The label shall bear the following legend:

DANGER

CONTAINS INORGANIC ARSENIC

CANCER HAZARD

HARMFUL IF INHALED OR SWALLOWED

USE ONLY WITH ADEQUATE VENITLATION

OR RESPIRATORY PROTECTION

(q) *Recordkeeping*—(1) *Exposure monitoring.* (i) The employer shall establish and maintain an accurate record of all monitoring required by paragraph (e) of this section.

(ii) This record shall include:

(A) The date(s), number, duration location, and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable;

(B) A description of the sampling and analytical methods used and evidence of their accuracy;

(C) The type of respiratory protective devices worn, if any;

(D) Name, social security number, and job classification of the employees monitored and of all other employees whose exposure the measurement is intended to represent; and

(E) The environmental variables that could affect the measurement of the employee's exposure.

(iii) The employer shall maintain these monitoring records for at least 40 years or for the duration of employment plus 20 years, whichever, is longer.

(2) *Medical surveillance.* (i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (n) of this section.

(ii) This record shall include:

(A) The name, social security number, and description of duties of the employee;

(B) A copy of the physician's written opinions;

(C) Results of any exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and

(D) Any employee medical complaints related to exposure to inorganic arsenic.

(iii) The employer shall in addition keep, or assure that the examining physician keeps, the following medical records;

(A) A copy of the medical examination results including medical and work history required under paragraph (n) of this section;

(B) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;

(C) The initial X-ray;

(D) The X-rays for the most recent 5 years; and

(E) Any X-rays with a demonstrated abnormality and all subsequent X-rays;

(iv) The employer shall maintain or assure that the physician maintains those medical records for at least 40

years, or for the duration of employment plus 20 years whichever is longer.

(3) *Availability.* (i) The employer shall make available upon request all records required to be maintained by paragraph (q) of this section to the Assistant Secretary and the Director for examination and copying.

(ii) Records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20 (a) through (e) and (g) through (i).

(4) *Transfer of records.* (i) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by this section.

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records required to be maintained by this section for the prescribed period, these records shall be transmitted to the Director.

(iii) At the expiration of the retention period for the records required to be maintained by this section, the employer shall notify the Director at least 3 months prior to the disposal of such records and shall transmit those records to the Director if he requests them within that period.

(iv) The employer shall also comply with any additional requirements involving the transfer of records set in 29 CFR 1910.20(h).

(r) *Observation of monitoring*—(1) *Employee observation.* The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to inorganic arsenic conducted pursuant to paragraph (e) of this section.

(2) *Observation procedures.* (i) Whenever observation of the monitoring of employee exposure to inorganic arsenic requires entry into an area where the use of respirators, protective clothing, or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing, and such equipment, and shall require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring, observers shall be entitled to;

(A) Receive an explanation of the measurement procedures;

(B) Observe all steps related to the monitoring of inorganic arsenic performed at the place of exposure; and

(C) Record the results obtained or receive copies of the results when returned by the laboratory.

(s) *Effective date.* This standard shall become effective August 1, 1978.

(t) *Appendices.* The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

(u) *Startup dates*—(1) *General.* The startup dates of requirements of this standard shall be the effective date of this standard unless another startup date is provided for either in other paragraphs of this section or in this paragraph.

(2) *Monitoring.* Initial monitoring shall be commenced on August 1, 1978, and shall be completed by September 15, 1978.

(3) *Regulated areas.* Regulated areas required to be established as a result of initial monitoring shall be set up as soon as possible after the results of that monitoring is known and no later than October 1, 1978.

(4) *Compliance program.* The written program required by paragraph (g)(2) as a result of initial monitoring shall be made available for inspection and copying as soon as possible and no later than December 1, 1978.

(5) *Hygiene and lunchroom facilities.* Construction plans for change- rooms, showers, lavatories, and lunchroom facilities shall be completed no later than December 1, 1978, and these facilities shall be constructed and in use no later than July 1, 1979. However, if as part of the compliance plan it is predicted by an independent engineering firm that engineering controls and work practices will reduce exposures below the permissible exposure limit by December 31, 1979, for affected employees, then such facilities need not be completed until 1 year after the engineering controls are completed or December 31, 1980, whichever is earlier,

if such controls have not in fact succeeded in reducing exposure to below the permissible exposure limit.

(6) *Summary of startup dates set forth elsewhere in this standard.*

STARTUP DATES

August 1, 1978—Respirator use over 500 µg/m³.

AS SOON AS POSSIBLE BUT NO LATER THAN

September 15, 1978—Completion of initial monitoring.

October 1, 1978—Complete establishment of regulated areas. Respirator use for employees exposed above 50 µg/m³. Completion of initial training. Notification of use.

December 1, 1978—Respirator use over 10 µg/m³. Completion of initial medical. Completion of compliance plan. Optional use of powered air-purifying respirators. . .

July 1, 1979—Completion of lunch rooms and hygiene facilities.

December 31, 1979—Completion of engineering controls.

All other requirements of the standard have as their startup date August 1, 1978.

APPENDIX A TO §1910.1018—INORGANIC ARSENIC SUBSTANCE INFORMATION SHEET

I. SUBSTANCE IDENTIFICATION

A. *Substance.* Inorganic Arsenic.

B. *Definition.* Copper acetoarsenite, arsenic and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

C. *Permissible Exposure Limit.* 10 micrograms per cubic meter of air as determined as an average over an 8-hour period. No employee may be exposed to any skin or eye contact with arsenic trichloride or to skin or eye contact likely to cause skin or eye irritation.

D. *Regulated Areas.* Only employees authorized by your employer should enter a regulated area.

II. HEALTH HAZARD DATA

A. *Comments.* The health hazard of inorganic arsenic is high.

B. *Ways in which the chemical affects your body.* Exposure to airborne concentrations of inorganic arsenic may cause lung cancer, and can be a skin irritant. Inorganic arsenic may also affect your body if swallowed. One compound in particular, arsenic trichloride, is especially dangerous because it can be absorbed readily through the skin. Because inorganic arsenic is a poison, you should wash your hands thoroughly prior to eating or smoking.

III. PROTECTIVE CLOTHING AND EQUIPMENT

A. *Respirators.* Respirators will be provided by your employer at no cost to you for routine use if your employer is in the process of implementing engineering and work practice controls or where engineering and work practice controls are not feasible or insufficient. You must wear respirators for nonroutine activities or in emergency situations where you are likely to be exposed to levels of inorganic arsenic in excess of the permissible exposure limit. Since how well your respirator fits your face is very important, your employer is required to conduct fit tests to make sure the respirator seals properly when you wear it. These tests are simple and rapid and will be explained to you during training sessions.

B. *Protective clothing.* If you work in a regulated area, your employer is required to provide at no cost to you, and you must wear, appropriate, clean, protective clothing and equipment. The purpose of this equipment is to prevent you from bringing to your home arsenic-contaminated dust and to protect your body from repeated skin contact with inorganic arsenic likely to cause skin irritation. This clothing should include such items as coveralls or similar full-body clothing, gloves, shoes or coverlets, and aprons. Protective equipment should include face shields or vented goggles, where eye irritation may occur. y

IV. HYGIENE FACILITIES AND PRACTICES

You must not eat, drink, smoke, chew gum or tobacco, or apply cosmetics in the regulated area, except that drinking water is permitted. If you work in a regulated area your employer is required to provide lunchrooms and other areas for these purposes.

If you work in a regulated area, your employer is required to provide showers, washing facilities, and change rooms. You must wash your face, and hands before eating and must shower at the end of the work shift. Do not take used protective clothing out of change rooms without your employer's permission. Your employer is required to provide for laundering or cleaning of your protective clothing.

V. SIGNS AND LABELS

Your employer is required to post warning signs and labels for your protection. Signs must be posted in regulated areas. The signs must warn that a cancer hazard is present, that only authorized employees may enter the area, and that no smoking or eating is allowed, and that respirators must be worn.

VI. MEDICAL EXAMINATIONS

If your exposure to arsenic is over the Action Level (5 mg/m3)—(including all persons working in regulated areas) at least 30 days per year, or you have been exposed to arsenic for more than 10 years over the Action Level, your employer is required to provide you with a medical examination. The examination shall be every 6 months for employees over 45 years old or with more than 10 years exposure over the Action Level and annually for other covered employees. The medical examination must include a medical history; a chest x-ray; a skin examination and a nasal examination. The examining physician will provide a written opinion to your employer containing the results of your medical exams. You should also receive a copy of this opinion. The physician must not tell your employer any conditions he detects unrelated to occupational exposure to arsenic but must tell you those conditions.

VII. OBSERVATION OF MONITORING

Your employer is required to monitor your exposure to arsenic and you or your representatives are entitled to observe the monitoring procedure. You are entitled to receive an explanation of the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you must also be provided with and must wear the protective clothing and equipment.

VIII. ACCESS TO RECORDS

You or your representative are entitled to records of your exposure to inorganic arsenic and your medical examination records if you request your employer to provide them.

IX. TRAINING AND NOTIFICATION

Additional information on all of these items plus training as to hazards of exposure to inorganic arsenic and the engineering and work practice controls associated with your job will also be provided by your employer. If you are exposed over the permissible exposure limit, your employer must inform you of that fact and the actions he is taking to reduce your exposures.

APPENDIX B TO §1910.1018—SUBSTANCE TECHNICAL GUIDELINES

ARSENIC, ARSENIC TRIOXIDE, ARSENIC TRICHLORIDE (THREE EXAMPLES)

I. Physical and chemical properties

A. Arsenic (metal).
1. Formula: As.
2. Appearance: Gray metal.
3. Melting point: Sublimes without melting 613C.
4. Specific Gravity: (H20=1):5.73.
5. Solubility in water: Insoluble.

B. Arsenic Trioxide.
1. Formula: As203, (As406).
2. Appearance: White powder.
3. Melting point: 315C.
4. Specific Gravity (H20=1):3.74.
5. Solubility in water: 3.7 grams in 100cc of water at 20c.

C. Arsenic Trichloride (liquid).
1. Formula: AsC13.
2. Appearance: Colorless or pale yellow liquid.
3. Melting point: −8.5C.
4. Boiling point: 130.2C.
5. Specific Gravity (H20=1):2.16 at 20C.
6. Vapor Pressure: 10mm Hg at 23.5C.
7. Solubility in Water: Decomposes in water.

II. Fire, explosion and reactivity data.

A. Fire: Arsenic, arsenic Trioxide and Arsenic Trichloride are nonflammable.

B. Reactivity:
1. Conditions Contributing to instability: Heat.
2. Incompatibility: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.

III. Monitoring and Measurement Procedures

Samples collected should be full shift (at least 7-hour) samples. Sampling should be done using a personal sampling pump at a flow rate of 2 liters per minute. Samples should be collected on 0.8 micrometer pore size membrane filter (37mm diameter). Volatile arsenicals such as arsenic trichloride can be most easily collected in a midget bubbler filled with 15 ml. of 0.1 N NaOH.

The method of sampling and analysis should have an accuracy of not less than ±25 percent (with a confidence limit of 95 percent) for 10 micrograms per cubic meter of air (10 µg/m³) and ±35 percent (with a confidence limit of 95 percent) for concentrations of inorganic arsenic between 5 and 10 µg/m³.

APPENDIX C TO §1910.1018—MEDICAL SURVEILLANCE GUIDELINES

I. GENERAL

Medical examinations are to be provided for all employees exposed to levels of inorganic arsenic above the action level (5 µg/m³) for at least 30 days per year (which would include among others, all employees, who work in regulated areas). Examinations are also to be provided to all employees who have had 10 years or more exposure above the action level for more than 30 days per year while working for the present or predecessor employer though they may no longer be exposed above the level.

An initial medical examination is to be provided to all such employees by December 1, 1978. In addition, an initial medical examination is to be provided to all employees who are first assigned to areas in which worker exposure will probably exceed 5 µg/

m^3(after the effective date of this standard) at the time of initial assignment. In addition to its immediate diagnostic usefulness, the initial examination will provide a baseline for comparing future test results. The initial examination must include as a minimum the following elements:

(1) A work and medical history, including a smoking history, and presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing;

(2) A 14" by 17" posterior-anterior chest X-ray and an International Labor Office UICC/Cincinnati (ILO U/C) rating;

(3) A nasal and skin examination; and

(4) Other examinations which the physician believes appropriate because of the employee's exposure to inorganic arsenic or because of required respirator use.

Periodic examinations are also to be provided to the employees listed above. The periodic examinations shall be given annually for those covered employees 45 years of age or less with fewer than 10 years employment in areas where employee exposure exceeds the action level (5 $\mu g/m^3$). Periodic examinations need not include sputum cytology and only an updated medical history is required.

Periodic examinations for other covered employees, shall be provided every six (6) months. These examinations shall include all tests required in the initial examination, except that the medical history need only be updated.

The examination contents are minimum requirements. Additional tests such as lateral and oblique X-rays or pulmonary function tests may be useful. For workers exposed to three arsenicals which are associated with lymphatic cancer, copper acetoarsenite, potassium arsenite, or sodium arsenite the examination should also include palpation of superficial lymph nodes and complete blood count.

II. NONCARCINOGENIC EFFECTS

The OSHA standard is based on minimizing risk of exposed workers dying of lung cancer from exposure to inorganic arsenic. It will also minimize skin cancer from such exposures.

The following three sections quoted from "Occupational Diseases: A Guide to Their Recognition", Revised Edition, June 1977, National Institute for Occupational Safety and Health is included to provide information on the nonneoplastic effects of exposure to inorganic arsenic. Such effects should not occur if the OSHA standards are followed.

A. *Local*— Trivalent arsenic compounds are corrosive to the skin. Brief contact has no effect but prolonged contact results in a local hyperemia and later vesicular or pustular eruption. The moist mucous membranes are most sensitive to the irritant action. Conjunctiva, moist and macerated areas of skin, the eyelids, the angles of the ears, nose, mouth, and respiratory mucosa are also vulnerable to the irritant effects. The wrists are common sites of dermatitis, as are the genitalia if personal hygiene is poor. Perforations of the nasal septum may occur. Arsenic trioxide and pentoxide are capable of producing skin sensitization and contact dermatitis. Arsenic is also capable of producing keratoses, especially of the palms and soles.

B. *Systemic*— The acute toxic effects of arsenic are generally seen following ingestion of inorganic arsenical compounds. This rarely occurs in an industrial setting. Symptoms develop within ½ to 4 hours following ingestion and are usually characterized by constriction of the throat followed by dysphagia, epigastric pain, vomiting, and watery diarrhea. Blood may appear in vomitus and stools. If the amount ingested is sufficiently high, shock may develop due to severe fluid loss, and death may ensue in 24 hours. If the acute effects are survived, exfoliative dermatitis and peripheral neuritis may develop.

Cases of acute arsenical poisoning due to inhalation are exceedingly rare in industry. When it does occur, respiratory tract symptoms—cough, chest pain, dyspnea—giddiness, headache, and extreme general weakness precede gastrointestinal symptoms. The acute toxic symptoms of trivalent arsenical poisoning are due to severe inflammation of the mucous membranes and greatly increased permeability of the blood capillaries.

Chronic arsenical poisoning due to ingestion is rare and generally confined to patients taking prescribed medications. However, it can be a concomitant of inhaled inorganic arsenic from swallowed sputum and improper eating habits. Symptoms are weight loss, nausea and diarrhea alternating with constipation, pigmentation and eruption of the skin, loss of hair, and peripheral neuritis. Chronic hepatitis and cirrhosis have been described. Polyneuritis may be the salient feature, but more frequently there are numbness and parasthenias of "glove and stocking" distribution. The skin lesions are usually melanotic and keratotic and may occasionally take the form of an intradermal cancer of the squamous cell type, but without infiltrative properties. Horizontal white lines (striations) on the fingernails and toenails are commonly seen in chronic arsenical poisoning and are considered to be a diagnostic accompaniment of arsenical polyneuritis.

Inhalation of inorganic arsenic compounds is the most common cause of chronic poisoning in the industrial situation. This condition is divided into three phases based on signs and symptoms.

First Phase: The worker complains of weakness, loss of appetite, some nausea, occasional vomiting, a sense of heaviness in the stomach, and some diarrhea.

Second Phase: The worker complains of conjunctivitis, a catarrhal state of the mucous membranes of the nose, larynx, and respiratory passage. Coryza, hoarseness, and mild tracheobronchitis may occur. Perforation of the nasal septum is common, and is probably the most typical lesion of the upper respiratory tract in occupational exposure to arsenical dust. Skin lesions, eczematoid and allergic in type, are common.

Third Phase: The worker complains of symptoms of peripheral neuritis, initially of hands and feet, which is essentially sensory. In more severe cases, motor paralyses occur; the first muscles affected are usually the toe extensors and the peronei. In only the most severe cases will paralysis of flexor muscles of the feet or of the extensor muscles of hands occur.

Liver damage from chronic arsenical poisoning is still debated, and as yet the question is unanswered. In cases of chronic and acute arsenical poisoning, toxic effects to the myocardium have been reported based on EKG changes. These findings, however, are now largely discounted and the EKG changes are ascribed to electrolyte disturbances concomitant with arsenicalism. Inhalation of arsenic trioxide and other inorganic arsenical dusts does not give rise to radiological evidence or pneumoconiosis. Arsenic does have a depressant effect upon the bone marrow, with disturbances of both erythropoiesis and myelopoiesis.

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[39 FR 23502, June 27, 1974, as amended at 43 FR 19624, May 5, 1978; 43 FR 28472, June 30, 1978; 45 FR 35282, May 23, 1980; 54 FR 24334, June 7, 1989; 58 FR 35310, June 30, 1993; 61 FR 5508, Feb. 13, 1996; 61 FR 9245, Mar. 7, 1996; 63 FR 1286, Jan. 8, 1998; 63 FR 33468, June 18, 1998]

§ 1910.1020 Access to employee exposure and medical records.

(a) *Purpose.* The purpose of this section is to provide employees and their designated representatives a right of access to relevant exposure and medical records; and to provide representatives of the Assistant Secretary a right of access to these records in order to fulfill responsibilities under the Occupational Safety and Health Act. Access by employees, their representatives, and the Assistant Secretary is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease. Each employer is responsible for assuring compliance with this section, but the activities involved in complying with the access to medical records provisions can be carried out, on behalf of the employer, by the physician or other health care personnel in charge of employee medical records. Except as expressly provided, nothing in this section is intended to affect existing legal and ethical obligations concerning the maintenance and confidentiality of employee medical information, the duty to disclose information to a patient/employee or any other aspect of the medical-care relationship, or affect existing legal obligations concerning the protection of trade secret information.

(b) *Scope and application.* (1) This section applies to each general industry, maritime, and construction employer who makes, maintains, contracts for, or has access to employee exposure or medical records, or analyses thereof, pertaining to employees exposed to toxic substances or harmful physical agents.

ARSENIC

ICSC: 0013

ARSENIC
Grey arsenic
Metallic arsenic
As
Atomic mass: 74.9

CAS # 7440-38-2
RTECS # CG0525000
ICSC # 0013
UN # 1558
EC # 033-001-00-X

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with strong oxidizers. NO contact with hot surfaces.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Risk of fire and explosion is slight if in the form of fine powder or dust when exposed to hot surfaces or flames.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
• **INHALATION**	Cough. Diarrhea. Shortness of breath. Sore throat. Vomiting. Weakness. Grey skin.	Closed system and ventilation.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
• **SKIN**	Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
• **EYES**	Redness.	or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), and then take to a doctor.
• **INGESTION**	Diarrhea. Nausea. Sore throat. Unconsciousness. Vomiting (further see Inhalation).	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Sweep spilled substance into sealable containers. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment (extra personal protection: complete protective clothing including self-contained breathing apparatus).	Provision to contain effluent from fire extinguishing. Separated from strong oxidants, acids, halogens, food and feedstuffs. Well closed. Keep in a well-ventilated room.	Do not transport with food and feedstuffs. T symbol R: 23/25 S: (1/2-)20/21-28-45 UN Hazard Class: 6.1 UN Packing Group: II Marine pollutant.

ARSENIC

ICSC: 0013

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODORLESS, BRITTLE, GREY, METALLIC-LOOKING CRYSTALS.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with strong oxidants and halogens causing fire and explosion hazard. Reacts with nitric acid, hot sulfuric acid. Toxic arsine gas may be formed in contact with acid or acidic substances and certain metals, such as galvanized or light metals.

OCCUPATIONAL EXPOSURE LIMITS (OELs):
TLV: ppm; 0.01 mg/m^3 (as TWA) A1 (ACGIH 1994-1995).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance irritates the eyes, the skin and the respiratory tract. The substance may cause effects on the circulatory system, nervous system, kidneys and gastrointestinal tract , resulting in convulsions, kidney impairment, severe hemorrhage, losses of fluids, and electrolytes, shock and death. Exposure may result in death. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged contact may cause skin sensitization. The substance may have effects on the mucous membranes, skin, kidneys, liver , resulting in neuropathy, pigmentation disorders, and perforation of nasal septum and tissue lesions. This substance is carcinogenic to humans.

PHYSICAL PROPERTIES

Sublimation point: 613°C
Relative density (water = 1): 5.7

Solubility in water: none

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. It is strongly advised not to let the chemical enter into the environment because it persists in the environment.

The substance is combustible but no flash point is available in literature. Depending on the degree of exposure, periodic medical examination is indicated. Do NOT take working clothes home.

BERYLLIUM

ICSC: 0226

BERYLLIUM
Glucinium
(powder)
Be
Atomic mass: 9.0

CAS # 7440-41-7
RTECS # DS1750000
ICSC # 0226
UN # 1567
EC # 004-001-00-7

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Special powder, dry sand, NO other agents.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
• INHALATION	Cough. Shortness of breath. Sore throat. Weakness. Symptoms may be delayed (see Notes).	Local exhaust. Breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
• EYES	Redness. Pain.	Face shield or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Carefully collect the	Separated from strong acids, bases, chlorinated solvents, food	Unbreakable packaging; put breakable packaging into closed

spilled substance into containers; if appropriate moisten first, then remove to safe place. Do NOT let this chemical enter the environment (extra personal protection: complete protective clothing including self-contained breathing apparatus).	and feedstuffs.	unbreakable container. Do not transport with food and feedstuffs. T+ symbol R: 49-25-26-36/37/38-43-48/23 S: 53-45 Note: E UN Hazard Class: 6.1 UN Subsidiary Risks: 4.1 UN Packing Group: II

BERYLLIUM

ICSC: 0226

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
GREY TO WHITE METAL OR POWDER.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
Reacts with strong acids and strong bases forming combustible gas (HYDROGEN - see ICSC # 0001). Forms shock sensitive mixtures with some chlorinated solvents, such as carbon tetrachloride and trichloroethylene.

OCCUPATIONAL EXPOSURE LIMITS (OELs):
TLV (as TWA): ppm; 0.002 mg/m^3
A2 (Suspected Human Carcinogen) (ACGIH 1994-1995).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
The aerosol of this substance irritates the respiratory tract. Inhalation of dust or fumes may cause chemical pneumonitis. Exposure may result in death. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact may cause skin sensitization. Lungs may be affected by repeated or prolonged exposure to dust particles , resulting in chronic beryllium disease (cough, weight loss, weakness). This substance is carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: above 2500°C
Melting point: 1287°C
Relative density (water = 1): 1.9
Solubility in water: none

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms.

NOTES

Depending on the degree of exposure, periodic medical examination is indicated.

APPENDIX F

APPENDIX F

MFG PERSONAL PROTECTIVE EQUIPMENT PROGRAM

MFG PERSONAL PROTECTIVE EQUIPMENT PROGRAM

MFG has developed and implemented a personal protective equipment (PPE) program to comply with the requirements of 29 CFR 1910.120 (g)(5). This PPE program contains procedures for:

1. PPE use and limitations;
2. PPE maintenance and storage;
3. PPE decontamination and disposal;
4. PPE training and proper fitting;
5. PPE donning and doffing;
6. PPE inspection prior to, during, and after use;
7. Evaluation of the PPE program effectiveness; and
8. Limitations during temperature extremes and heat stress, and other appropriate medical considerations.

The PPE program also includes a respiratory protection program (RPP) to comply with 29 CFR 1910.134.

The purpose of PPE is to shield individuals from safety and/or health hazards that may be encountered while performing site work. Careful selection, training, use and maintenance of PPE is necessary to minimize the risk to individuals while they are performing work in potentially hazardous environments. The type of PPE to be worn by MFG employees will be evaluated by the degree of exposure to a potential hazard on a site-to-site basis.

The minimum PPE to be worn by MFG employees at most sites will consist of head, eye, foot and, in some cases, hearing protection. On sites where there is a potential for exposure to specific physical hazards or to health hazards other than physical hazards, MFG employees may be required to wear protective clothing and/or respiratory protective devices. The MFG Site Safety Officer will be responsible for determining when conditions warrant upgrading or downgrading the level of protection. The Site Health and Safety Plan will also outline PPE decontamination and disposal procedures, PPE donning and doffing procedures, limitations during temperature extremes and heat stress, etc.

Training in the proper use and limitation, maintenance and storage, fitting, donning and doffing, etc., of PPE will be initially received by employees in an OSHA off-site hazardous materials health and safety course (i.e., 40-hr course). At a minimum, these skills will be maintained by attendance of annual

refresher courses. Supplemental training may be provided by qualified MFG personnel, outside contractors, vendors, etc., on an as needed basis. It is the employee's responsibility to read and become familiar with the manufacturer's instructions concerning, but not limited to, the use, limitation, care, storage, etc., of all PPE.

The PPE program will typically be evaluated on an annual basis. Training and/or literature obtained by MFG personnel will be used to revise and update the procedures, provisions, etc., presented in the following sections. In addition, information, experience, etc., obtained during projects, or knowledge of new techniques, may be used to revise the PPE program at any time.

The following sections briefly describe the use of head, eye, foot, hearing, and respiratory protective equipment. In addition, the use of chemically-resistant clothing is also addressed. Infrequently, employee may be required to use PPE not addressed in these sections for a specific project-related task. On such occasions, the procedures for the use and limitation, maintenance and storage, decontamination and disposal, training and proper fitting, donning and doffing, inspection, evaluation of effectiveness, and medical considerations will be contained in the Site Health and Safety Plan.

F-1.0 Head Protection

The use of helmets (hard hats) for the protection of heads from impact and penetration from falling and flying objects is specified under 29 CFR 1910.135. In general, MFG employees will be required to wear hard hats when the potential exists for a threat from an overhead object. In many cases, mandatory use of hard hats is required by clients while performing work at any location on their facility.

As specified in 29 CFR 1910.135, MFG will supply employees with head protection that meets the requirements of the American National Standards Institute (ANSI) Standard Z89.1 Requirements for Industrial Head Protection.

The hard hats will be used, cleaned, maintained, etc., by the employee per the manufacturer's instructions. Employees will inspect hard hats prior to each use to ensure that the hat is in proper condition. Use of head protection with structural damage, or alterations that may compromise the structural integrity of the hard hat, is prohibited. If defects are detected, the hat will be exchanged. Any

alterations to the hat such as, but not limited to, drilling of holes, painting, or cleaning with solvents and/or thinners, or modifications to the suspension can compromise the structural integrity of the hat.

F-2.0 Eye and Face Protection

The use of protective eye and/or face equipment is specified under 29 CFR 1910.133. MFG employees will be required to wear eye protection on all job sites. The type of protection required will be a function of the potential threat and will be specified in the Site Health and Safety Plan. In general, safety glasses with permanently attached side shields will be required when the principal threat is physical (e.g., flying objects). When the potential for splash exists, goggles or face shields may be required.

MFG will supply employees with safety glasses, goggles, and/or face shields that meet the requirements of ANSI Standard Z87.1 Occupational and Educational Eye and Face Protection. For employees who require the use of corrective lenses, MFG will reimburse those individuals for the purchase of one pair of glasses that comply with the above ANSI Standard. The eye glasses must have permanently attached side shields.

Face and eye protection will be used, cleaned, maintained, etc., by the employee per the manufacturer's instructions. Employees will inspect eye and/or face protection prior to each use to ensure that it is in proper condition. Use of eye and face protective equipment with structural or optical defects is prohibited. If defects are detected, the eye or face protection will be exchanged.

F-3.0 Foot Protection

The use of foot protection (i.e., steel-toe boots) is specified under 29 CFR 1910.136. MFG employees will be required to wear foot protection on all job sites. The construction of the foot protection (e.g., leather, PVC, etc.) will be a function of the potential threat and will be specified in the Site Health and Safety Plan.

MFG will reimburse employees for the purchase of one pair of leather boots and one pair of waterproof (e.g., PVC) boots. On projects that necessitate the purchase of footwear composed of specific chemical resistant materials, MFG will supply personnel with the appropriate footwear.

Employees are responsible for ascertaining that the footwear they purchase complies with the requirements of the ANSI Standard Z41.1 Men's Safety-Toe Footwear. The footwear will be used, cleaned, maintained, etc., by the employee per the manufacturer's instructions. Employees will inspect foot protection prior to each use to ensure that it is in proper condition. Use of footwear with structural defects, worn soles, cracks, etc., is prohibited. If defects are detected, the boots will be exchanged.

F-4.0 Hearing Protection

Exposure to high noise levels can cause hearing loss or impairment. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is the only way to avoid hearing damage. Protection against the effects of occupational noise exposure is specified in 29 CFR 1910.95. This OSHA standard sets an 8-hour time-weighted-average (TWA) sound exposure level of 90 decibels (dBA); the 8-hour TWA action level is set at 85 dBA.

MFG does not routinely monitor noise levels at job sites. However, it is MFG's policy that hearing protection be used whenever the potential exists for exposure to excessive noise levels. As such, it is the responsibility of the employee to use company-supplied hearing protection whenever project work is performed adjacent to any operating machinery, etc., or the project involves the use of any equipment, tools, etc., no matter how long the duration. The following data, extracted from "*Fundamentals of Industrial Hygiene* "[1] (Table 9-B), are provided as examples of noise levels generated by common activities/equipment: average residence - 40 dBA; noisy office - 80 dBA; passing truck - 100 dBA; and turbo jet engine - 150 dBA.

Disposable earplugs will be used one time, per the manufacturer's instruction, and then discarded. Non-disposable hearing protection will be used, cleaned, maintained, etc., by the employee per the manufacturer's instructions. Employees will inspect hearing protection prior to each use to ensure that it is

[1] National Safety Council, 1988, page 168.

in proper condition. Use of hearing protection with structural or acoustical damage is prohibited. If defects are detected, the hearing protection will be exchanged.

F-5.0 Chemically Resistant Clothing

Protective clothing prevents potentially dangerous chemicals from entering the body, usually through the skin. Such clothing also protects the body from burns and cold or wet conditions. Protective clothing can range from gloves to fully encapsulated suits. The chief characteristics of chemical protective clothing include:

1. Strength;
2. Flexibility;
3. Thermal limits; and
4. Chemical resistance.

Strength depends on the material's tensile strength and its resistance to abrasions, punctures, and tears. Flexibility allows the individual to move and work effectively. Gloves especially must be flexible, and in cold weather this is sometimes a problem. Thermal limits refer to the material's ability to maintain its protective capacity in temperature extremes. Thermal limits also affect worker mobility in cold weather and heat transfer in hot weather.

Chemical resistance refers to a material's ability to retain its structural integrity and protective qualities. Material can degrade when a contaminant or chemical reacts with the material. All material eventually degrades. Swelling, shrinking, brittleness, softness, discoloration, elongation or cracking indicates deterioration. These conditions should alert the worker to the possibility that the material is not providing adequate protection.

Chemical resistance can also be described in terms of:

1. Degradation;
2. Breakthrough time;
3. Penetration; and
4. Permeation.

Degradation is the change of the material's physical properties as a result of the chemical's negative effects. Breakthrough time is the time it takes the chemical to pass through the protective material until it is first detected by an analytical instrument. Penetration refers to bulk chemical flow through the protective material. Penetration is not a material property but rather a function of garment design and construction.

Penetration can occur through:

1. Material defects;
2. Seams;
3. Sleeves;
4. Pant legs;
5. Zippers, button holes or other enclosures;
6. Neck or head openings; and
7. Porous material.

Aerosol particulates, mists, gas, and vapors have the greatest penetration ability. Penetration can be prevented by:

1. Stitched and lapped or sealed areas;
2. Self-sealing zipper and overlap flap;
3. Hood with elastic sealed connection;
4. Elastic wrists and ankles;
5. One-piece suit; and
6. Taping seams and openings such as ankles, wrists, and zippers.

The significance of penetration depends on skin absorptivity and the following contaminant characteristics:

1. Toxicity;
2. Concentration;
3. Physical phase; and
4. Exposure route.

Use of a garment constructed of an impenetrable material can cause the possibility of heat stress because outside air is not allowed to penetrate the material; thus, little air moves within the garment. Cooling devices (e.g., ice vests) are not always effective or efficient.

Permeation (i.e., chemical movement at the molecular level through the material) occurs once the chemical has broken through the material. Because movement is by molecular diffusion, movement is microscopic and unnoticeable by the unaided eye. The contaminant, which can condense inside the material, will tend to reach an equilibrium concentration gradient.

Permeation rate, the rate of chemical movement through the material once breakthrough has started, can be very fast or very slow. Permeation rate is:

1. Inversely proportional to material thickness (discounting fillers);
2. Directly proportional to contaminant concentration gradient; and
3. Directly proportional to the amount of direct contact with the contaminant.

Chemical resistance of the protective materials is based on laboratory degradation or permeation tests. Laboratories perform these tests at room temperature; higher temperatures may decrease permeation time and rate. These data are approximate values because manufacturers' products, even products made of the same material, can have different properties. In addition, considerations should be given to the following facts:

- Eventually all chemicals pass or permeate through protective materials, and this can happen without any visible indications;
- A material may protect a worker well against one chemical but poorly against another; no single material is an absolute barrier against all chemicals;
- Garments that look alike do not necessarily possess identical protective qualities; and
- When a material starts to absorb a chemical, the chemical will continue to permeate through the material even though the material may not be in direct contact with the chemical.
- Specific considerations for glove, suit and boot selection include the following:
- Hands will probably come in contact with the greatest variety of contaminants;
- Gloves generally need to withstand longer exposure times;
- Gloves need to be flexible because intricate work is usually done with the hands;
- Inexpensive disposable suits can be worn over fully encapsulated suits to reduce contamination of the underlying suit;
- Garments that workers do not dispose of must be decontaminated;
- Boots must withstand long exposure times; especially if workers must stand in liquid; and
- Physical and psychological stress caused by the garment, especially the fully encapsulated suits, which can cause the wearer claustrophobia.

Chemical protective clothing will be required whenever the potential exists for exposure to hazardous concentrations of aqueous, solid, particulate and/or gaseous contaminants. In many instances, chemically protective clothing will be used in conjunction with respiratory protective devices. Used together, combinations of these PPE will offer different levels of protection (i.e., Levels A, B, C, and D). The appropriate level of protection selected will be a function of the potential concentrations of the contaminant(s), the forms in which they are present, the route(s) of potential exposure (i.e., inhalation, skin absorption, ingestion, eye or skin contact, etc.), and the employee's work requirements and task-specific conditions.

The Site Health and Safety Plan will outline the levels of protection required of each individual for each task to be performed. The levels of protection will be assessed using site-specific chemical and physical data. The selection of PPE will be performed using guidelines in documents such as "Personal Protective Equipment for Hazardous Materials Incidents: A Selection Guide"[2] and "Guidelines for the Selection of Chemical Protective Clothing"[3]. The MFG Site Safety Officer will be responsible for determining when conditions warrant upgrading or downgrading the level of protection. This determination will be made on the basis of "action levels" established in the Site Health and Safety Plan.

The Site Health and Safety Plan will also outline decontamination and disposal procedures, donning and doffing procedures, etc., for chemically protective clothing. Employees will inspect protective clothing prior to use to ensure that it is in proper condition. Use of protective clothing with structural defects is prohibited. If defects are detected, the protective clothing will be exchanged. In general, gloves, outer boots, and disposable coveralls will be replaced daily. If they become damaged, they will be replaced immediately.

F-6.0 Respiratory Protection

The use of respiratory protection is specified under 29 CFR 1910.134. The primary objective of this protection is to limit employee exposure to harmful atmospheric conditions. Potential exposure will be

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[2] NIOSH, 1984

[3] ACGIH, 1987, Third Edition.

initially limited by engineering control measures, to the extent practical. When effective engineering controls are not feasible or effective, appropriate respiratory protection will be used.

MFG has developed the following Respiratory Protection Program (RPP) to comply with 29 CFR 1910.134(a)(2). It is the responsibility of the employee to use the provided respiratory protection in accordance with the instructions and training provided by the manufacturer, OSHA training courses, Site Health and Safety Plans, etc. The majority of this section is oriented to the selection, use, maintenance, etc. of air-purifying respirators (APRs), or Level C respiratory protection. Additional instruction, training, etc. for care and use of supplied air respiratory equipment (e.g., Levels A and B of respiratory protection) will be included in Site Health and Safety Plans, as appropriate.

F-6.1 Standard Operating Procedure for the Selection and Use of Respirators

The document *"NIOSH Respirator Decision Logic"* [4], or equivalent, will be used as guidance for selecting appropriate levels of respiratory protection. Outside consultation, manufacturers' assistance, and other recognized authorities may be consulted if there is any doubt regarding proper selection and use.

F-6.2 Respirator Selection

Respirators will be selected on the basis of hazards to which the worker may be potentially exposed. All selections will be made using site-specific chemical and physical data. The selection process will be documented in the Site Health and Safety Plan.

F-6.3 Instruction and Training

Employees will be instructed and trained in the proper use of respirators and their limitations. Training will provide the employee an opportunity to handle the respirator, have it properly fitted, test its face piece to face seal, wear it in normal air for a long familiarity period, and finally wear it in a test atmosphere. Employees will receive fitting instructions, including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly.

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[4] NIOSH, 1987; Publication No. 87-108

Training in the proper use and limitations, maintenance, and storage, fitting, donning, doffing, etc., of respirators will be initially received by employees in an OSHA off-site hazardous materials health and safety course. At a minimum, these skills will be maintained by attendance at an annual refresher course.

Respirators will not be worn when conditions prevent a good face seal. Such conditions may be growth of a beard, sideburns, a skull cap that projects under the face piece, or temple pieces on glasses. No employees who are required to wear respirators may wear beards. Also, the absence of one or both dentures can seriously affect the fit of a face piece. To assure proper protection, it is the employee's responsibility to check the face piece fit each time the employee puts on the respirator. This will be done by following the manufacturer's face piece-fitting instructions.

Employees who may be required to wear respirators will be qualitatively fit-tested on an annual basis. However, under certain work situations, it may be necessary to perform quantitative fit testing. Fit testing documentation will be maintained in the corporate files.

F-6.4 Cleaning, Disinfection, and Storage

Where practicable, respirators will be assigned to individual employees for their exclusive use. Employees will be responsible for regularly cleaning and disinfecting their respirators. Respirators issued for the exclusive use of one employee will be cleaned after each use, or more often, if necessary. Respirators used by more than one employee will be thoroughly cleaned and disinfected after each use. Respirators will be cleaned and disinfected per the manufacturer's instructions.

Employees must store their respirators to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Protection against mechanical damage will also be the responsibility of the employee. Respirators will be stored so that the face piece and exhalation valve will rest in a normal position to prevent the rubber or plastic from reforming in an abnormal shape.

F-6.5 Inspection

Employees will be responsible for the routine inspection of their respirators. Respirators will be inspected for wear and deterioration of their components before and after each use. Special attention will be given to rubber or plastic parts. The face piece, especially the face seal surface, headband, valves, connecting tube, fittings, and canister connections must be in good condition. At a minimum, respirators will be inspected during the annual fit test procedure. If defects are detected, the respirator will be repaired/replaced. Inspection of the respirators will be documented. These inspection records will be maintained in the corporate files.

F-6.6 Surveillance

Appropriate surveillance of work area conditions (e.g., ambient air monitoring, personal monitoring, etc.) and degree of employee exposure or stress will be performed per the Site Health and Safety Plan.

F-6.7 Program Evaluation

Regular inspection and evaluation will be performed to assess the continued effectiveness of the RPP. The Corporate Health and Safety Director may make periodic inspections of employee respirators to ensure compliance with the cleaning, disinfection, storage, inspection requirements. In addition, the Site Safety Officer may make periodic audits of job sites to ensure compliance with the RPP. The evaluation records will be maintained in the corporate files.

F-6.8 Medical Monitoring

Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The respirator user's medical status will be reviewed annually.

F-6.9 Certification

Respirators will be MSHA- or NIOSH-approved. Supplied air will meet or exceed Grade D breathing air specifications. A small, backup SCBA (escape pack) will be carried by personnel when using an SCBA or air-line respirator.

APPENDIX F-1

Levels of Protection

LEVELS OF PROTECTION

Personal protective equipment is generally divided into four categories based on the level, or degree, of protection provided. The following are meant to serve as guidelines which can be used to select the appropriate level of protection; optional equipment is not included.

MODIFIED

LEVEL D A work uniform affording some skin protection; used mainly during sampling and decon.

Blue jeans, shirt with 4" sleeves.
Safety glasses or sunglasses.
Hearing protection.
Gloves: chemical resistant.
Boots: steel-toed.
Hard hat.

LEVEL D A work uniform affording minimal protection; used for nuisance contamination only.

Blue jeans, shirt with 4" sleeves.
Boots: steel-toed.
Hard hat.

APPENDIX F-2

Outline For Selecting Respiratory Protective Devices

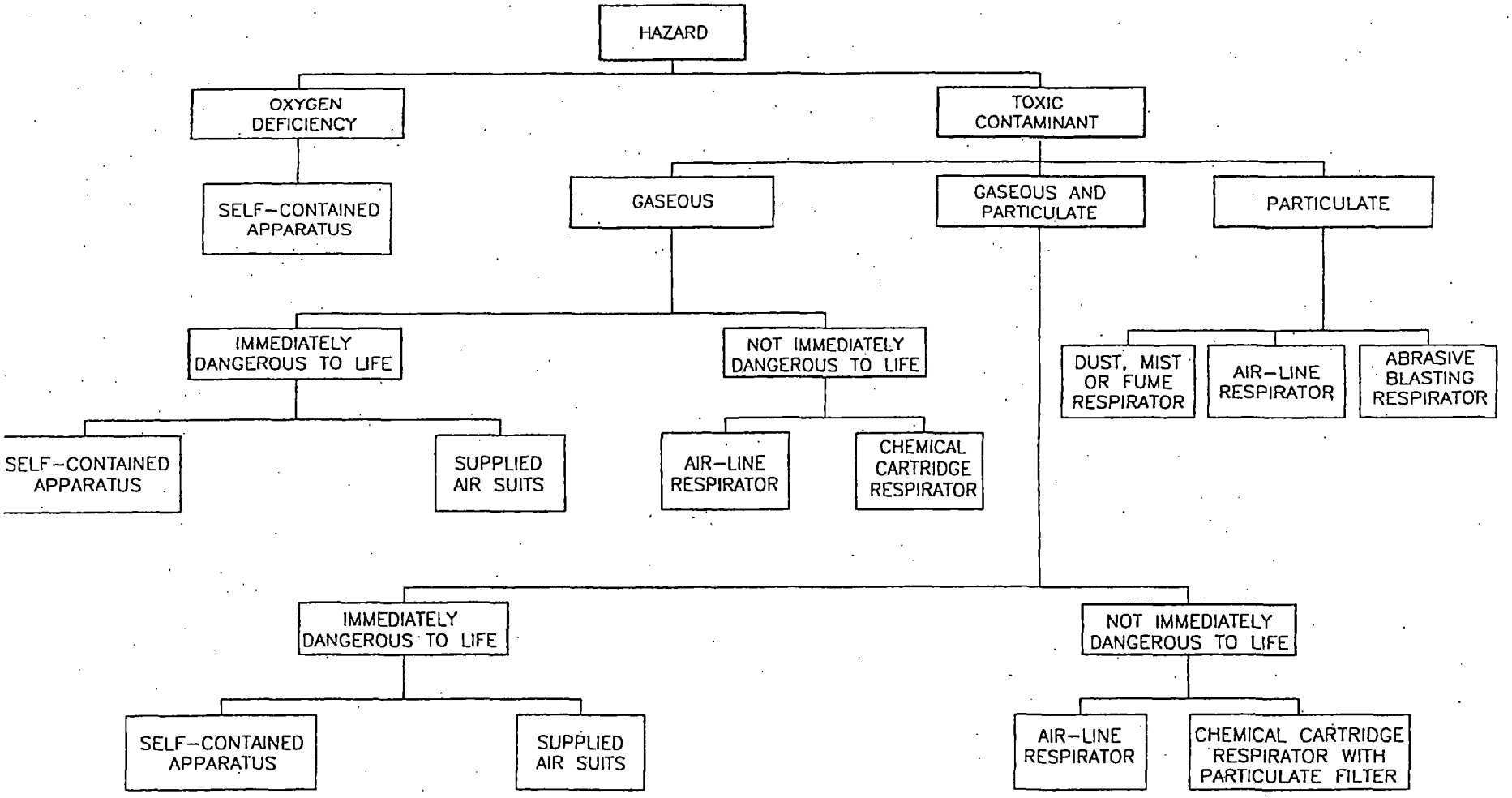

FIGURE 1

RESPIRATOR DECISION FLOW DIAGRAM

PROJECT: 0000	DATE: FEBRUARY 2000	
REV:	BY:PW	CHECKED: PSW

MFG, Inc.

consulting scientists and engineers

APPENDIX F-3

Respirator Fit Test Record

RESPIRATOR FIT TEST RECORD

MFG, Inc.

A: EMPLOYEE: _____

SOCIAL SECURITY NO: _____

EMPLOYEE JOB TITLE: _____

B: RESPIRATOR TYPE: _____

MANUFACTURER: _____

MODEL: _____

SIZE: _____

C. CONDITIONS WHICH COULD AFFECT RESPIRATOR FIT:

BEARD	FACIAL SCAR
MOUSTACHE	GLASSES

COMMENTS: _____

D. FIT CHECKS:

NEGATIVE PRESSURE	PASS	FAIL	NOT DONE
POSITIVE PRESSURE	PASS	FAIL	NOT DONE

E. FIT TESTING:

QUANTITATIVE	ISOAMYL ACETATE QUALITATIVE	IRRITANT SMOKE QUALITATIVE
FIT FACTOR	PASS	PASS
	FAIL	FAIL

COMMENTS: _____

F. ACKNOWLEDGMENT

In accordance with the Corporate Respiratory Protection Program, I understand that I am responsible for:

Regular use of my respirator whenever there is a possibility I may be exposed to air contaminants;
Cleaning, disinfecting, inspecting and storing my respirator; and
Reporting respirator malfunction to my supervisor.

EMPLOYEE SIGNATURE: _____ DATE: _____

FIT TESTED BY: _____

SIGNATURE OF FIT TESTER: _____

APPENDIX G

APPENDIX G

MFG MEDICAL SURVEILLANCE PROGRAM

MFG MEDICAL SURVEILLANCE PROGRAM

G-1.0 Policy

All employees potentially exposed to occupational health hazards will participate in the medical monitoring program, with no exceptions.

G-2.0 Purpose

The medical monitoring program is designed to assess and monitor worker's health and fitness both prior to employment and during the course of work, to provide emergency and other treatment as needed, and to keep accurate records for future reference. MFG's medical program is designed to meet or exceed the OSHA requirements for workers that handle hazardous substances. The medical monitoring program provides for pre-placement, annual, periodic, post exposure and separation examinations for all MFG employees potentially exposed to occupational health hazards. MFG' s medical program is managed by WorkCare, Inc. of Orange, California. WorkCare specializes in providing oversight of medical surveillance programs. Their website address is: http://www.workcare.com.

G-3.0 Requirements

Site-specific medical monitoring programs will be developed based on specific needs, location, and potential exposures of employees at the site. This determination is made by Corporate Health and Safety Director, who is tasked with overall program management and quality control.

G-3.1 Pre-Placement Medical Examinations

The purpose of the pre-placement medical exam is twofold: (1) to determine the employee's fitness for duty, including the ability to work while wearing protective equipment; and (2) to provide baseline data for comparison with future medical data. A pre-placement medical examination is necessary prior to the employee initiating field work.

Termination physicals from previous employment may be accepted in lieu of MFG's pre-placement exam, within the constraints of exam content and time frame.

Pre-placement medical examinations may vary a great deal in content depending upon the nature of the job assignment. Pre-placement physicals for technical personnel may include the following components:

1. History and physical;
2. Vision - Titmus;
3. Audiogram;
4. Pulmonary Function Test (PFT);
5. Electrocardiogram (EKG);
6. Chest X-rays (with interpretation);
7. Blood Chemistry Panel;
8. Complete Blood Count (CBC);
9. Urinalysis with Microanalysis (UA);
10. Urine heavy metals (arsenic, cadmium, mercury) screen - optional;
11. Blood lead/ZPP - optional;
12. Tetanus booster - optional;
13. Respirator Clearance Form; and
14. Medical Clearance Form.

G-3.2 Annual Medical Exams

The annual physical exams will be equivalent to the pre-placement exam except for the history, which will include any relevant information concerning possible exposures, symptoms, etc. occurring since the last physical. More frequent examinations may be necessary, depending on the extent of potential or actual exposure, the type of chemicals involved, the duration of the work assignment, and the individual worker's profile. Additional tests for specific chemical exposures will be added to the annual exam when deemed appropriate by the physician.

G-3.3 Periodic Medical Exams and Supplemental Medical Monitoring

Periodic and supplemental medical monitoring examinations will be used in conjunction with pre-placement screening exams and annual physicals to compare sequential medical reports with baseline data; thus determining biological trends that may mark early signs of adverse health effects, and thereby facilitate appropriate protective measures. A baseline level for the site-specific compound of potential concern must be established prior to the employees beginning field work. The appropriate biological indicator and test method (e.g., blood analysis for lead, urine analysis for mercury) will be determined prior to initiating supplemental testing.

The frequency and content of examinations will vary, depending on the nature of the work and exposures. Periodic screening exams can include:

Interval medical history (focusing on changes in health status, illnesses, and possible work-related symptoms);

Review of the worker's interval exposure history, including exposure monitoring at the jobsite; and

Physical examination.

Additional site-specific supplemental monitoring and medical testing may include:

a. Pulmonary function test;

b. Audiometric tests;

b. Vision tests; and/or

d. Blood and urine tests for heavy metals or other compounds, when indicated.

G-3.4 Termination Medical Exams

A separation exam will be scheduled for employees who are participating in the medical surveillance program. The separation exam will be similar to the pre-placement exam, with the exceptions of the medical history (updated since the last physical), no chest x-rays will be taken and an EKG will not be given. The occupational physician will certify any deleterious effects arising from employment at MFG. Every effort will be made to encourage employees to complete a separation exam. If an employee refuses to take a separation exam, the "Exit Physical Waiver" form shall be completed by the employee at the time of separation.

G-3.5 Lead Examination

According to the OSHA lead standard (29 CFR 1910.1025), a medical surveillance program must be instituted and medical examinations and consultations must be made available to every employee potentially exposed above the lead action level (30 ug/m^3, averaged over an 8-hour period) for more than 30 days total per year, regardless of continuity of days. MFG shall assure that WorkCare, the physician and/or medical clinic maintains medical records for at least 40 years, or duration of employment plus 20 years, whichever is longer.

Prior to job commencement, a physician will evaluate and document the worker's baseline health status by collecting medical, environmental, and occupational histories; by performing a physical examination; and by requesting physiological and laboratory tests appropriate for the anticipated occupational risks.

The medical examination, both initial and periodic, will include the following:

A thorough physical examination that pays particular attention to the hematologic, gastrointestinal, renal, cardiovascular, and neurological systems;

An evaluation of pulmonary status to determine whether the worker is capable of wearing a respirator;

Blood pressure measurement;

A blood sample to determine blood lead levels, hemoglobin and hematocrit, blood urea nitrogen, serum creatinine, and zinc protoporphyrin (ZPP). Blood lead/ZPP tests will be repeated every 6 months, or more frequently if required by the HASP, for employees continuously assigned to lead-contaminated job sites;

A routine urinalysis with microscopic examination;

Pregnancy testing or male infertility testing, if requested by the worker; and

Any laboratory or other test that is recommended by the examining physician.

G-3.6 Employee Exposure Monitoring

Hazardous waste work involves potential exposure to a wide variety of potential hazards. In the case of chemical exposures and some physical hazards such as noise, these exposures may be measured and quantified. An employee will receive additional medical monitoring upon notifying the employer of symptoms consistent with overexposure to on-site chemicals, or if any employee is exposed to on-site chemicals at concentrations in excess of the permissible exposure limit (PEL) without protection.

Exposure monitoring may be accomplished for the purpose of establishing or verifying work area protection levels, to designate appropriate work zones, and to supplement or trigger medical monitoring requirements. This monitoring may be carried out by monitoring each individual's exposure or by conducting representative monitoring for specific work tasks or groups of employees exposed to similar hazards under similar conditions.

All exposure monitoring results will be communicated to the individual monitored or to the representative group of employees, as appropriate. Written monitoring reports will be provided to the employee and a copy will be maintained in the employee health and safety file. The results will also be provided to the physician who carries out the medical monitoring examinations for the Company and to WorkCare. Exposure monitoring records will be maintained for a period of 30 years, and may be stored on microfilm or microfiche, as necessary.

Employee exposure monitoring will be carried out in accordance with NIOSH standardized methods of sampling and analysis, or other equivalent methods. These methods specify quality assurance/quality control (QA/QC) provisions for maintaining

sampling and analytical integrity, precision, and accuracy. Samples will be analyzed by a laboratory accredited by the American Industrial Hygiene Association (AIHA).

G-3.7 Examining Physician's Report

The examining physician's written report will include the physician's opinion regarding the employee's ability to wear protective clothing and respiratory protective equipment. In addition, any medical condition that is detected via the examination process that is believed to be a direct result of the work environment will be included in this report. The examining physician's opinion regarding the individual's work restrictions will be documented in this report. The restrictions noted by the physician will be reviewed by MFG's Corporate Health and Safety Director. This information and decision will be summarized on a Fitness for Duty form.

The examining physician will be required to notify the employee of any conditions which are detected during the exam whether these conditions are deemed to be related to their work environment or not. In addition, the examining physician will provide the employee with a written copy of the examination and test results. These records may also be provided to the employee's personal physician upon written release by the employee.

G-4.0 Recordkeeping

An employee's medical records are considered personal and confidential and are kept separate from other personnel records. Records generated by the Medical Surveillance Program must be preserved and maintained by WorkCare, the physician and/or medical clinic for at least 30 years after termination of the employee' s employment with MFG. The original records are currently stored at each medical clinic and copies are maintained by WorkCare. The physician's written reports, x-rays, exam data, and test results make up the employee's confidential medical record. Project Managers will be made aware of medical information that is related to their employee's fitness for duty only.

G-4.1 Additional Information

All examining physicians will be provided copies of 29 CFR 1910.120, any pertinent employee exposure data available since the employee's last exam, the employee's job description, the employee's exposure levels or anticipated exposure levels, and a description of any PPE used or to be used. Each Office Health and Safety Coordinator is responsible for communicating this information to WorkCare and the examining physician.

PHYSICAL EXAMINATION REQUIREMENTS

2002

TEST COMPONENT	BASELINE	ANNUAL	TERMINATION	POTENTIAL OVER EXPOSURE
1. History and Physical	Yes	--	--	Specific
2. Update Occupational/Medical History	--	Yes	Yes	Yes
3. Complete Physical Exam by Physician	Yes	Yes	Yes	Yes
4. Vitals (Ht., Wt., BP, Temp, etc.)	Yes	Yes	Yes	Yes
5. Audiometric Exam	Yes	Yes	Yes	If Indicated
- Documentation of STS	N/A	Yes	Yes	If Indicated
6. Vision Test with Titmus	Yes	Yes	No	If Indicated
7. Electrocardiogram (EKG)	Yes	Age<40 every 3 yrs Age 40-50 every 2 yrs Age >50 every year	No	N/A
8. Chest X-Ray (2 views with Interp)	Yes	Every 3 yrs	No	If Indicated
9. Pulmonary Function Test (PFT)	Yes	Yes	Yes	If Indicated
10. Blood Chemistry Panel	Yes	Yes	Yes	If Indicated
11. Complete Blood Count (CBC)	Yes	Yes	Yes	If Indicated
12. Urinalysis with Microanalysis	Yes	Yes	No	If Indicated
13. Urine Heavy Metal Screen	If Required	If Required	If Required	If Indicated
14. Tetanus Booster (every 10 yrs)	If Indicated	If Indicated	No	If Indicated
15. Blood Lead & ZPP	If Required	If Required	If Required	If Indicated
16. Medical Clearance Form	Yes	Yes	Yes	Yes
17. Respirator Certification Form	Yes	Yes	No	Yes

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